

2021

SELECTION GUIDE



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» OS Support List I (Windows/Linux)

System Chipset	CE 6.0	Embedded Compact 7 CE 7.0	Embedded Compact 2013	2000	XP Pro	7	8.1	10 32 bit	10 64 bit	Server 2003	Server 2008	Server 2012	Server 2016	Server 2019	Linux Kernel
Intel® Tiger Lake UP3									V						Linux Kernel 5.4
Comet Lake	Intel® W480E								V					V	Linux Kernel 5.4
	Intel® Q470E								V						Linux Kernel 5.4
	Intel® H420E								V						Linux Kernel 5.4
	Intel® H410								V						Linux Kernel 5.4
	Intel® Atom™ C3000 R								V			V	V		Linux Kernel 4.4
Intel® Atom™ C3000							V		V			V	V		Linux Kernel 4.4
Intel® Whiskey Lake ULT							V		V		V	V	V	V	Linux Kernel 4.19
Coffee Lake / Coffee Lake-R	Intel® C246								V			V	V	V	Linux Kernel 4.14/4.19
	Intel® Q370								V						Linux Kernel 4.14/4.19
	Intel® H310								V						Linux Kernel 4.14/4.19
	Intel® CM246								V						Linux Kernel 4.14/4.19
	Intel® QM370								V						Linux Kernel 4.14/4.19
	Intel® HM370								V						Linux Kernel 4.14/4.19
Intel® Broadwell-DE						V	V		V		V	V	V		Linux Kernel 3.19
Kaby Lake	Intel® C236								V		V	V	V		Linux Kernel 4.14
	Intel® Q170								V						Linux Kernel 4.14
	Intel® H110								V						Linux Kernel 4.14
	Intel® CM238								V						Linux Kernel 4.14
	Intel® QM175								V						Linux Kernel 4.14
	Intel® HM175								V						Linux Kernel 4.14
	Intel® Kaby Lake ULT								V						Linux Kernel 4.14
Skylake	Intel® C236					V	V		V		V	V	V		Linux Kernel 4.0 (3.2)
	Intel® Q170					V	V		V						Linux Kernel 4.0 (3.2)
	Intel® H110					V	V		V						Linux Kernel 4.0 (3.2)
	Intel® CM236					V	V		V						Linux Kernel 4.0 (3.2)
	Intel® QM170					V	V		V						Linux Kernel 4.0 (3.2)
	Intel® HM170					V	V		V						Linux Kernel 4.0 (3.2)
	Intel® Skylake ULT					V	V		V						Linux Kernel 4.0 (3.2)
	Intel® Broadwell ULT					V	V		V						Linux Kernel 3.19

» OS Support List II (Windows/Linux)

System Chipset	CE 6.0	Embedded Compact 7 CE 7.0	Embedded Compact 2013	2000	XP Pro	7	8.1	10 32 bit	10 64 bit	Server 2003	Server 2008	Server 2012	Server 2016	Server 2019	Linux Kernel
Haswell	Intel® C226				V	V	V		V	V	V	V			Linux Kernel 3.x
	Intel® Q87				V	V	V		V						Linux Kernel 3.x
	Intel® H81				V	V	V		V						Linux Kernel 3.x
	Intel® QM87				V	V	V		V						Linux Kernel 3.x
	Intel® Haswell ULT					V	V		V						Linux Kernel 2.6.3x
Ivy Bridge	Intel® C216				V	V	V		V	V	V	V			Linux Kernel 2.6.3x
	Intel® Q77				V	V	V		V						Linux Kernel 2.6.3x
	Intel® QM77				V	V	V		V						Linux Kernel 2.6.3x
Sandy Bridge	Intel® C206				V	V	V			V	V	V			Linux Kernel 2.6.3x
	Intel® Q67	V			V	V	V								Linux Kernel 2.6.3x
	Intel® B65	V			V	V	V								Linux Kernel 2.6.3x
	Intel® H61	V			V	V	V								Linux Kernel 2.6.3x
	Intel® QM67	V			V	V	V								Linux Kernel 2.6.3x
	Intel® HM65	V			V	V	V								Linux Kernel 2.6.3x
Intel® Legacy	Intel® Q57				V	V									Linux Kernel 2.6.2x
	Intel® QM57				V	V									Linux Kernel 2.6.2x
	Intel® HM55				V	V									Linux Kernel 2.6.2x
	Intel® Apollo Lake N4000/E3900								V						Linux Yocto Project 4.1
Intel® Atom™	Intel® Braswell N3000					V	V	V	V						Linux Kernel 3.14 Android 5.0
	Intel® Bay Trail J1900/N2930/ N2807/E3800	V	V			V	V	V	V						Linux Kernel 3.12 Android 4.2 (32 bit) Android 4.4 (64 bit)
	Intel® D2550/ N2600/N2800+ NM10				V	V									Linux Kernel 2.6.35
	Intel® D2550/ N2600/N2800 + ICH10R				V	V									Linux Kernel 2.6.35
	Intel® D525/D425/ N455/N425 + ICH8M	V			V	V									Linux Kernel 2.6.2x
AMD®	AMD® V1000-series (Ryzen Embedded) SoC								V						Linux Kernel 4.14
	AMD® R1000-series (Ryzen Embedded) SoC								V						Linux Kernel 4.14
	AMD® R-series (MERLIN FALCON) SoC					V	V		V						Linux Kernel 3.13
	AMD® G-series (eKABINI) SoC	V	V	V	V	V	V		V						Linux Kernel 3.x
	AMD® Geode LX800 + CS5536				V										Linux Kernel 2.6.18

Microserver D1500 family CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1667	Xeon® E3	22nm Broadwell	16/32	D-1577	1.30 GHz	24 MB	45 W	None	None	DDR4-2133, DDR3L-1600	-
			16/32	D-1571	1.30 GHz	24 MB	45 W				
			12/24	D-1567	2.10 GHz	18 MB	65 W				
			12/24	D-1559	1.50 GHz	18 MB	45 W				
			12/24	D-1557	1.50 GHz	18 MB	45 W				
			8/16	D-1548	2.00 GHz	12 MB	45 W				
			8/16	D-1541	2.10 GHz	12 MB	45 W				
			8/16	D-1540	2.00 GHz	12 MB	45 W				
			8/16	D-1539	1.60 GHz	12 MB	35 W				
			8/16	D-1537	1.70 GHz	12 MB	35 W				
			6/12	D-1531	2.20 GHz	9 MB	45 W				
			4/8	D-1529	1.30 GHz	6 MB	20 W				
			6/12	D-1528	1.90 GHz	9 MB	35 W				
			4/8	D-1527	2.20 GHz	6 MB	35 W				
			4/8	D-1521	2.40 GHz	6 MB	45 W				
			4/8	D-1520	2.20 GHz	6 MB	45 W				
	4/8	D-1518	2.20 GHz	6 MB	35 W						
	Pentium®		4/8	D1519	1.50 GHz	6 MB	25 W				
			4/8	D1517	1.60 GHz	6 MB	25 W				
			2/2	D1509	1.50 GHz	3 MB	19 W				
			2/4	D1508	2.20 GHz	3 MB	25 W				
			2/2	D1507	1.20 GHz	3 MB	20 W				

Denver Atom® C3000 Family CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1310	Atom®	14nm Denverton	16/16	C3958	2.0GHz	16MB	31W	None	None	DDR4 2400	None
			12/12	C3858	2.0GHz	12MB	25W	None	None		
			8/8	C3758	2.2GHz	16MB	25W	None	None		
			4/4	C3558	2.2GHz	8MB	16W	None	None	DDR4 2133	
			4/4	C3538	2.1GHz	8MB	15W	None	None		
			2/2	C3338	1.5GHz	4MB	8.5W	None	None	DDR4 1866	
			2/2	C3336	1.5GHz	4MB	11W	None	None		
			8/8	C3758R	2.4GHz	16MB	26W	None	None	DDR4 2400	
			4/4	C3558R	2.4GHz	8MB	17W	None	None		
			4/4	C3436L	1.3GHz	8MB	10.75W	None	None	DDR4 1866	
			2/2	C3338R	1.8GHz	4MB	10.5W	None	None		

Workstation Xeon® E3/E/W Series CPU List

Supported Sockets	Brand	Process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset	
FCLGA1200	Xeon W	14nm Comet Lake-S	10/20	W-1290E	3.5 GHz	20MB	95W	Intel® UHD Graphics 630	350 MHz	DDR4-2933	W480E/ W480	
				W-1290TE	1.8 GHz		35W					
			8/16	W-1270E	3.4 GHz	16MB	80W					DDR4-2666
				W-1270TE	2.0 GHz		35W					
			6/12	W-1250E	3.5 GHz	12MB	80W					
				W-1250TE	2.4 GHz		35W					
FCLGA2066	Xeon® W	14nm Cascade Lake	18/36	W-2295	3.00 GHz	24.75 MB	165 W	None	None	DDR4 2933	C422	
			14/28	W-2275	3.30GHz	19.25 MB	165 W	None	None			
			12/24	W-2265	3.50 GHz	19.25 MB	165 W	None	None			
			10/20	W-2255	3.70 GHz	19.25 MB	165 W	None	None			
			8/16	W-2245	3.90 GHz	16.5 MB	155 W	None	None			
			6/12	W-2235	3.80 GHz	8.25 MB	130W	None	None			
			4/8	W-2225	4.10 GHz	8.25 MB	105W	None	None			
			4/8	W-2223	3.60 GHz	8.25 MB	120W	None	None	DDR4 2666		

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Workstation Xeon® E3/E/W Series CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA3647	Xeon® W	14nm Cascade Lake	28/56	W-3275	2.50 GHz	38.5 MB	205W	None	None	DDR4 2933	C621
			24/48	W-3265M	2.70 GHz	33 MB	205W	None	None		
			24/48	W-3265	2.70GHz	33MB	205W	None	None		
			16/32	W-3245M	3.20 GHz	22MB	205W	None	None		
			16/32	W-3245	3.20 GHz	22 MB	205W	None	None		
			12/24	W-3235	3.30 GHz	19.25 MB	180W	None	None		
			8/16	W-3225	3.70 GHz	16.5 MB	160W	None	None	DDR4-2666	C621
			8/16	W-3223	3.50 GHz	16.5 MB	160W	None	None		
FCLGA1151	Xeon® E	14nm Coffee lake	6/12	E-2186G	3.80 GHz	12MB	95W	Intel® UHD Graphics P630	350 MHz	DDR4-2666	C246/ C242
			6/12	E-2176G	3.70 GHz	12MB	80W				
			4/8	E-2174G	3.80 GHz	8MB	71W				
			6/12	E-2146G	3.50 GHz	12MB	80W				
			4/8	E-2144G	3.60 GHz	8MB	71W				
			6/12	E-2136	3.30 GHz	12MB	80W	NA	NA		
			4/8	E-2134	3.50 GHz	8MB	71W	NA	NA		
			6/6	E-2126G	3.30 GHz	12MB	80W	Intel® UHD Graphics P630	350 MHz		
			4/4	E-2124	3.30 GHz	8MB	71W	NA	NA		
			4/4	E-2124G	3.40 GHz	8MB	71W	Intel® UHD Graphics P630	350 MHz		
FCLGA1151	Xeon® E3	14nm Kaby Lake	4/8	E3-1285 V6	4.1GHz	8 MB	79W	Intel® HD Graphics P630	350 MHz	DDR4-2400, DDR3L-1866	C236
			4/8	E3-1280 V6	3.9GHz	8 MB	72W	None	None		
			4/8	E3-1275 V6	3.8GHz	8 MB	73W	Intel® HD Graphics P630	350 MHz		
			4/8	E3-1270 V6	3.8GHz	8 MB	72W	None	None		
			4/8	E3-1245 V6	3.7GHz	8 MB	73W	Intel® HD Graphics P630	350 MHz		
			4/8	E3-1240 V6	3.7GHz	8 MB	72W	None	None		
			4/8	E3-1230 V6	3.5GHz	8 MB	72W	None	None		
			4/4	E3-1225 V6	3.3GHZ	8 MB	73W	Intel® HD Graphics P630	350 MHz		
			4/4	E3-1220 V6	3.0GHz	8 MB	72W	None	None		
FCLGA2066	Xeon® W	14nm Skylake	4/4	W-2123	3.60 GHz	8.25MB	120W	None	None	DDR4-2666 ECC R-DIMM / LR-DIMM	C422
			4/4	W-2125	4.00 GHz	8.25MB	120W	None	None		
			6/12	W-2133	3.60 GHz	8.25MB	140W	None	None		
			6/12	W-2135	3.70 GHz	8.25MB	140W	None	None		
			8/16	W-2145	3.70 GHz	11MB	140W	None	None		
			10/20	W-2155	3.30 GHz	13.75MB	140W	None	None		
			14/28	W-2175	2.50 GHz	19MB	140W	None	None		
			18/36	W-2195	2.30 GHz	24.75MB	140W	None	None		
FCLGA1151	Xeon® E3	14nm Skylake	4/8	E3-1515MV5	2.80 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	C236
			4/8	E3-1505MV5	2.80 GHz	8 MB	45 W	Intel® HD Graphics P530			
			4/8	E3-1578LV5	2.00 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580	700 MHz	DDR3L, DDR4 2133MHz at 1.2V	
			4/8	E3-1558LV5	1.90 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P555	650 MHz		
			4/8	E3-1505LV5	2.00 GHz	8 MB	25 W	Intel® HD Graphics P530	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	
			4/8	E3-1268LV5	2.40 GHz	8 MB	35 W				
			4/8	E3-1585V5	3.50 GHz	8 MB	65 W	Intel® Iris™ Pro Graphics P580		DDR3L, LPDDR3 1600MHz, DDR4 2133MHz at 1.2V	
			4/8	E3-1585LV5	3.00 GHz	8 MB	45 W				
			4/8	E3-1565LV5	2.50 GHz	8 MB	35 W				

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Workstation Xeon® E3/E/W Series CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Xeon® E3	14nm Skylake	4/8	E3-1280V5	3.70 GHz	8 MB	80 W	None	None	DDR4-1866/2133, DDR3L-1333/1600@1.35V	C236
			4/8	E3-1275V5	3.60 GHz	8 MB	80 W	Intel® HD Graphics P530	400 MHz		
			4/8	E3-1270V5	3.60 GHz	8 MB	80 W	None	None		
			4/8	E3-1260LV5	2.90 GHz	8 MB	45 W				
			4/8	E3-1245V5	3.50 GHz	8 MB	80 W	Intel® HD Graphics P530	400 MHz		
			4/8	E3-1240LV5	2.10 GHz	8 MB	25 W	None	None		
			4/8	E3-1240V5	3.50 GHz	8 MB	80 W				
			4/4	E3-1235LV5	2.00 GHz	8 MB	25 W	Intel® HD Graphics P530	400 MHz		
			4/8	E3-1230V5	3.40 GHz	8 MB	80 W	None	None		
			4/4	E3-1225V5	3.30 GHz	8 MB	80 W	Intel® HD Graphics P530	400 MHz		
			4/4	E3-1220V5	3.00 GHz	8 MB	80 W	None	None		
FCLGA1150	Xeon® E3	22nm Haswell	4/4	E3-1220 v3	3.1 GHz	8 MB	80 W	None	-	DDR3 and DDR3L 1333/1600 at 1.5V	C226
			2/4	E3-1220LV3	1.1 GHz	4 MB	13 W		-	DDR3 1333/1600	
			4/4	E3-1225V3	3.2 GHz	8 MB	84 W	Intel® HD Graphics P4600	350 MHz	DDR3 and DDR3L 1333/1600 at 1.5V	
			4/4	E3-1226V3	3.3 GHz	8 MB	84 W	None			
			4/8	E3-1230 v3	3.3 GHz	8 MB	80 W		-		
			4/8	E3-1230Lv3	1.8 GHz	8 MB	25 W		-		
			4/8	E3-1231V3	3.4 GHz	8 MB	80 W		-		
			4/8	E3-1240 v3	3.4 GHz	8 MB	80 W		-		
			4/8	E3-1240LV3	2 GHz	8 MB	25 W		-		
			4/8	E3-1241V3	3.5 GHz	8 MB	80 W	-			
			4/8	E3-1245 v3	3.4 GHz	8 MB	84 W	Intel® HD Graphics P4600	350 MHz	DDR3 1333/1600	
			4/8	E3-1246V3	3.5 GHz	8 MB	84 W				
			4/8	E3-1265Lv3	2.5 GHz	8 MB	45 W	Intel® HD Graphics	350 MHz	DDR3 and DDR3L 1333/1600 at 1.5V	
			4/8	E3-1268LV3	2.3 GHz	8 MB	45 W	Intel® HD Graphics 4600			
			4/8	E3-1270 v3	3.5 GHz	8 MB	80 W	None	-		
			4/8	E3-1271V3	3.6 GHz	8 MB	80 W	None	-		
			4/8	E3-1275 v3	3.5 GHz	8 MB	84 W	Intel® HD Graphics P4600	350 MHz		
			4/8	E3-1275LV3	2.7 GHz	8 MB	45 W	Intel® HD Graphics			
			4/8	E3-1276V3	3.6 GHz	8 MB	84 W	Intel® HD Graphics P4600			
			4/8	E3-1280 v3	3.6 GHz	8 MB	82 W	None	-		
			4/8	E3-1281V3	3.7 GHz	8 MB	82 W	None	-		
			4/8	E3-1285 v3	3.6 GHz	8 MB	84 W	Intel® HD Graphics P4700	350 MHz		
			4/8	E3-1285LV3	3.1 GHz	8 MB	65 W				
			4/8	E3-1286V3	3.7 GHz	8 MB	84 W				
			4/8	E3-1286LV3	3.2 GHz	8 MB	65 W				
LGA1155	Xeon® E3	22nm Ivy Bridge	4/8	E3-1290V2	3.7 GHz	8 MB	87 W	-	-	DDR3-1333/1600	C206/ C21
			4/8	E3-1280V2	3.6 GHz	8 MB	69 W	-	-		
			4/8	E3-1275V2	3.5 GHz	8 MB	77 W	-	1.25 GHz		
			4/8	E3-1270V2	3.5 GHz	8 MB	69 W	-	-		
			4/8	E3-1265LV2	2.5 GHz	8 MB	45 W	-	1.15 GHz		
			4/8	E3-1245V2	3.4 GHz	8 MB	77 W	-	1.25 GHz		
			4/8	E3-1240V2	3.4 GHz	8 MB	69 W	-	-		
			4/8	E3-1230V2	3.3 GHz	8 MB	69 W	-	-		
			4/4	E3-1225V2	3.2 GHz	8 MB	77 W	-	1.25 GHz		
			4/4	E3-1220V2	3.1 GHz	8 MB	69 W	-	-		
			4/2	E3-1220LV2	2.3 GHz	3 MB	17 W	-	-		

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Workstation Xeon® E3/E/W Series CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
LGA1155	Xeon® E3	32nm Sandy Bridge	4/8	E3-1290	3.6 GHz	8 MB	95 W	-	-	DDR3-1066/1333	C206/C216
			4/8	E3-1280	3.5 GHz	8 MB	95 W	-	-		
			4/8	E3-1275	3.4 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	E3-1270	3.4 GHz	8 MB	80 W	-	-		
			4/8	E3-1260L	2.4 GHz	8 MB	45 W	-	1.25 GHz		
			4/8	E3-1245	3.3 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	E3-1240	3.3 GHz	8 MB	80 W	-	-		
			4/8	E3-1235	3.2 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	E3-1230	3.2 GHz	8 MB	80 W	-	-		
			4/4	E3-1225	3.1 GHz	6 MB	95 W	-	1.35 GHz		
			4/2	E3-1220L	2.2 GHz	3 MB	20 W	-	-		
			4/4	E3-1220	3.1 GHz	8 MB	80 W	-	-		

Desktop Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	process	Cores/ Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset		
FCLGA1200	Core™ i9	14nm Comet Lake-S	10/20	i9-10900E	2.8 GHz	20MB	65W	Intel® UHD Graphics 630	350 MHz	DDR4-2933	W480E/ W480/ Q470E/ Q470/ H420E/ H410		
				i9-10900TE	1.8 GHz	20MB	35W						
	Core™ i7		8/16	i7-10700E	2.9 GHz	16MB	65W	Intel® UHD Graphics 630		DDR4-2933			
				i7-10700TE	2.0 GHz	16MB	35W						
	Core™ i5		6/12	i5-10500E	3.1 GHz	8MB	65W	Intel® UHD Graphics 630		DDR4-2666			
				i5-10500TE	2.3 GHz	8MB	35W						
	Core™ i3		4/8	i3-10100E	3.2 GHz	9MB	65W	Intel® UHD Graphics 630		DDR4-2666			
				i3-10100TE	2.3 GHz	9MB	35W						
	Pentium®		2/4	G6400E	3.8 GHz	4MB	58W	Intel® UHD Graphics 630		DDR4-2400	Q470E/ Q470/ H420E/ H410		
			2/4	G6400TE	3.2 GHz	4MB	35W						
Celeron®	2/2	G5900E	3.2 GHz	2MB	58W	Intel® UHD Graphics 630	DDR4-2400						
		2/2	G5900TE	3.0 GHz	2MB	35W							
FCLGA1151	Core™ i9	14nm Coffee Lake refresh	8/16	i9-9900KF	3.60 GHz	16MB	95W	N/A	N/A	DDR4-2666	H310/Q370/ C246		
			8/16	i9-9900T	2.10 GHz	16MB	35W	Intel® UHD Graphics 630					
			8/16	i9-9900	3.10 GHz	16MB	65W						
	Core™ i7	14nm Coffee Lake refresh	8/8	i7-9700E	2.60 GHz	12MB	65W	Intel® UHD Graphics 630					
			8/8	9700TE	1.80 GHz	12MB	35W						
			8/8	i7-9700K	3.60 GHz	12MB	95W						
			8/8	i7-9700	3.00 GHz	12MB	65W						
			8/8	i7-9700T	2.00 GHz	12MB	35W						
	Core™ i5	14nm Coffee Lake refresh	6/6	i5-9500E	3.00 GHz	9MB	65W	Intel® UHD Graphics 630	350 MHz			DDR4-2666	H310/Q370/ C246
			6/6	i5-9500TE	2.20 GHz	9MB	35W						
			6/6	i5-9600K	3.70 GHz	9MB	95W						
			6/6	i5-9500	3.00 GHz	9MB	65W						
			6/6	i5-9400	2.90 GHz	9MB	65W						
			6/6	i5-9500T	2.20 GHz	9MB	35W						
			6/6	i5-9400T	1.80 GHz	9MB	35W						
	Core™ i3	14nm Coffee Lake refresh	4/4	i3-9100E	3.10 GHz	6MB	65W	Intel® UHD Graphics 630		DDR4-2400	H310/Q370/ C246		
			4/4	i3-9100TE	2.20GHz	6MB	35W						
		14nm Coffee Lake	4/4	i3-9100	3.60 GHz	6MB	65W	Intel® UHD Graphics 630					
			4/4	i3-9300	3.70 GHz	8MB	62W						
			4/4	i3-9300T	3.20 GHz	8MB	35W						
			4/4	i3-9100T	3.10 GHz	6MB	35W						
			4/4	i3-9350K	4.00 GHz	8MB	91W						

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Desktop Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset		
FCLGA1151	Core™ i9	14nm Coffee Lake	8/16	i9-9900K	3.60 GHz	16MB	95W	Intel® UHD Graphics 630	350 MHz	DDR4-2666	H310/Q370		
	Core™ i7	14nm Coffee Lake	8/8	i7-9700K	3.60 GHz	12MB	95W						
			6/12	i7-8700T	2.40 GHz	12MB	35W						
			6/12	i7-8700K	3.70 GHz	12MB	95W						
			6/12	i7-8700	3.20 GHz	12MB	65W						
			6/12	i7-8086K	4.00 GHz	12MB	95W						
	Core™ i3	14nm Coffee Lake	4/4	i3-8350K	4.00 GHz	8MB	91W	Intel® UHD Graphics 630		DDR4-2400	H310/Q370		
		14nm Coffee Lake	4/4	i3-8300	3.70 GHz	8MB	62W						
			4/4	i3-8300T	3.20 GHz	8MB	35W						
			4/4	i3-8100	3.60 GHz	6MB	65W						
	Core™ i5	14nm Coffee Lake	6/6	i5-9600K	3.70 GHz	9MB	95W	Intel® UHD Graphics 630		350 MHz	DDR4-2666	H310/Q370	
			6/6	i5-8600T	2.30 GHz	9MB	35W						
			6/6	i5-8600K	3.60 GHz	9MB	95W						
			6/6	i5-8600	3.10 GHz	9MB	65W						
			6/6	i5-8500T	2.10 GHz	9MB	35W		H310				
			6/6	i5-8500	3.00 GHz	9MB	65W						
			6/6	i5-8400T	1.70 GHz	9MB	35W						
			6/6	i5-8400	2.80 GHz	9MB	65W						
	Pentium®	14nm Coffee Lake	2/4	G5600	3.90 GHz	4MB	54W	Intel® UHD Graphics 630	DDR4-2400	H310/Q370			
			2/4	G5500T	3.20 GHz	4MB	35W						
			2/4	G5500	3.80 GHz	4MB	54W						
			2/4	G5400T	3.10 GHz	4MB	35W	Intel® UHD Graphics 610					
			2/4	G5400	3.70 GHz	4MB	58W						
	Celeron®	14nm Coffee Lake	2/2	G4920	3.20 GHz	2MB	54W	Intel® UHD Graphics 610	350 MHz	DDR4-2400	H310/Q370		
			2/2	G4900T	2.90 GHz	2MB	35W						
			2/2	G4900	3.10 GHz	2 MB	54W						
FCLGA1151	Core™ i7	14nm Kaby Lake	4/8	i7-7700	3.6GHz	8 MB	65W	Intel® HD Graphics 630	350 MHz	DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	C236/Q170/H110		
			4/8	i7-7700K	4.2GHz	8 MB	91W						
			4/8	i7-7700T	2.9GHz	8 MB	35W						
		14nm Skylake	4/8	i7-6785R	3.30 GHz	8 MB	65 W	Intel® Iris™ Pro Graphics 580				Intel® HD Graphics 530	DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V
			4/8	i7-6700K	4.00 GHz	8 MB	91 W						
			4/8	i7-6700T	2.80 GHz	8 MB	35 W						
	4/8		i7-6700	3.40 GHz	8 MB	65 W							
	4/8		i7-6700TE	2.40 GHz	8 MB	35 W							
	Core™ i5	14nm Kaby Lake	4/4	i5-7600K	3.8GHz	6 MB	91W	Intel® HD Graphics 630		DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V			
			4/4	i5-7600T	2.8GHz	6 MB	35W						
			4/4	i5-7600	3.5GHz	6 MB	65W						
			4/4	i5-7500	3.4GHz	6 MB	65W						
			4/4	i5-7400T	2.4GHz	6 MB	35W						
			4/4	i5-7500T	2.7GHz	6 MB	35W						
			4/4	i5-7400	3.5GHz	6 MB	65W						
		14 nm Skylake	4/4	i5-6600	3.30 GHz	6 MB	65 W	Intel® Iris™ Pro Graphics 580		Intel® HD Graphics 530		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V	
			4/4	i5-6600K	3.50 GHz	6 MB	91 W						
			4/4	i5-6585R	2.80 GHz	6 MB	65 W						
			4/4	i5-6500	3.20 GHz	6 MB	65 W						
			4/4	i5-6500T	2.50 GHz	6 MB	35 W						
			4/4	i5-6402P	2.80 GHz	6 MB	65 W						
			4/4	i5-6400	2.70 GHz	6 MB	65 W						
	Core™ i3	14nm Kaby Lake	2/4	i3-7350K	4.2GHz	4 MB	60W	Intel® HD Graphics 630		350 MHz		DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	
			2/4	i3-7320	4.1GHz	4 MB	51W						
			2/4	i3-7300	4.0GHz	4 MB	51W						
			2/4	i3-7300T	3.5GHz	4 MB	35W						
			2/4	i3-7101E	3.9GHz	3 MB	54W						
			2/4	i3-7101TE	3.4GHz	3 MB	35W						
			2/4	i3-7100T	3.4GHz	3 MB	35W						
			2/4	i3-7100T	3.9GHz	3 MB	51W						
		14 nm Skylake	2/4	i3-6300	3.80 GHz	4 MB	51 W	Intel® HD Graphics 530	DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V				
			2/4	i3-6300T	3.30 GHz	4 MB	35 W						
			2/4	i3-6320	3.90 GHz	4 MB	51 W						
			2/4	i3-6100	3.70 GHz	3 MB	51 W						
			2/4	i3-6100T	3.20 GHz	3 MB	35 W						
			2/4	i3-6100TE	2.70 GHz	4 MB	35 W						

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Desktop Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1151	Pentium®	14nm Kaby Lake	2/4	G4620	3.7GHz	3 MB	51W	Intel® HD Graphics 630	350 MHz	DDR4-2133/2400, DDR3L-1333/1600 @ 1.35V	C236/Q170/H110
			2/4	G4600T	3.0GHz	3 MB	35W				
			2/4	G4600T	3.6GHz	3 MB	51W	Intel® HD Graphics 610			
			2/4	G4560T	2.9GHz	3 MB	35W				
		14nm Skylake	2/4	G4560	3.5GHz	3 MB	54W	Intel® HD Graphics 530			
			2/2	G4500	3.50 GHz	3 MB	51W				
			2/2	G4500T	3.00 GHz	3 MB	35W	Intel® HD Graphics 510			
			2/2	G4520	3.60 GHz	3 MB	51W				
	Celeron®	14nm Kaby Lake	2/2	G3950	3.0GHz	2 MB	51W	Intel® HD Graphics 610	350 MHz	DDR4 2133, DDR3L 1333/1600 @ 1.35V	C236/Q170/H110
			2/2	G3930TE	2.7GHz	2 MB	35W				
			2/2	G3930T	2.7GHz	2 MB	35W				
			2/2	G3930E	2.9GHz	2 MB	54W				
			2/2	G3930	2.9GHz	2 MB	51W				
			14 nm Skylake	2/2	G3920	2.90 GHz	2 MB			51 W	
		2/2		G3900T	2.60 GHz	2 MB	35 W				
		FCLGA1150	Core™ i7	22 nm Haswell	4/4	i7-4765T	2 GHz	8 MB		35 W	
2/4	i7-4770				3.4 GHz	8 MB	84 W	350 MHz			
4/4	i7-4770K				3.5 GHz	8 MB	84 W	350 MHz			
4/8	i7-4770S				3.1 GHz	8 MB	65 W	350 MHz			
4/8	i7-4770T				2.5 GHz	8 MB	45 W	350 MHz			
4/8	i7-4771				3.5 GHz	8 MB	84 W	350 MHz			
4/8	i7-4785T				2.2 GHz	8 MB	35 W	350 MHz			
4/8	i7-4790				3.6 GHz	8 MB	84 W	350 MHz			
4/8	i7-4790S		3.2 GHz		8 MB	65 W	350 MHz				
4/8	i7-4790T		2.7 GHz		8 MB	45 W	350 MHz				
Core™ i5	4/4		i5-4670		3.4 GHz	6 MB	84 W	350 MHz			
	4/4		i5-4670K		3.4 GHz	6 MB	84 W	350 MHz			
	4/4		i5-4670S		3.1 GHz	6 MB	65 W	350 MHz			
	4/4		i5-4670T		2.3 GHz	6 MB	45 W	350 MHz			
	4/4		i5-4690		3.5 GHz	6 MB	84 W	350 MHz			
	4/4		i5-4690S		3.2 GHz	6 MB	65 W	350 MHz			
	4/4	i5-4690T	2.5 GHz	6 MB	45 W	350 MHz					
	4/4	i5-4570	3.2 GHz	6 MB	84 W	350 MHz					
	4/4	i5-4570S	2.9 GHz	6 MB	65 W	350 MHz					
	2/4	i5-4570T	2.9 GHz	4 MB	35 W	200 MHz					
	4/4	i5-4590	3.3 GHz	6 MB	84 W	350 MHz					
	4/4	i5-4590S	3 GHz	6 MB	65 W	350 MHz					
Core™ i3	4/4	i5-4590T	2 GHz	6 MB	35 W	350 MHz					
	4/4	i5-4460T	1.9 GHz	6 MB	35 W	350 MHz					
	4/4	i5-4460S	2.9 GHz	6 MB	65 W	350 MHz					
	4/4	i5-4460	3.2 GHz	6 MB	84 W	350 MHz					
	4/4	i5-4440S	2.8 GHz	6 MB	65 W	350 MHz					
	4/4	i5-4440	3.1 GHz	6 MB	84 W	350 MHz					
	4/4	i5-4430S	2.7 GHz	6 MB	65 W	350 MHz					
	4/4	i5-4430	3 GHz	6 MB	84 W	350 MHz					
	2/4	i3-4330	3.5 GHz	4 MB	54 W	Intel® HD Graphics 4600	350 MHz				
	2/4	i3-4330T	3 GHz	4 MB	35 W		200 MHz				
	2/4	i3-4340	3.6 GHz	4 MB	54 W		350 MHz				
	2/4	i3-4350	3.6 GHz	4 MB	54 W		350 MHz				
	2/4	i3-4350T	3.1 GHz	4 MB	35 W		200 MHz				
	2/4	i3-4360	3.7 GHz	4 MB	54 W		350 MHz				
	2/4	i3-4360T	3.2 GHz	4 MB	35 W	Intel® HD Graphics 4400	200 MHz				
	2/4	i3-4370	3.8 GHz	4 MB	54 W		350 MHz				
2/4	i3-4370T	3.3 GHz	4 MB	35 W	200 MHz						
2/4	i3-4170T	3.2 GHz	3 MB	35 W	200 MHz						
2/4	i3-4170	3.7 GHz	3 MB	54 W	350 MHz						
2/4	i3-4160T	3.1 GHz	3 MB	35 W	200 MHz						
2/4	i3-4160	3.6 GHz	3 MB	54 W	350 MHz						
2/4	i3-4150T	3 GHz	3 MB	35 W	200 MHz						
2/4	i3-4150	3.5 GHz	3 MB	54 W	350 MHz						
2/4	i3-4130T	2.9 GHz	3 MB	35 W	200 MHz						
2/4	i3-4130	3.4 GHz	3 MB	54 W	350 MHz						

Yellow means long-term support

Desktop Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCLGA1150	Pentium®	22nm Haswell	2/2	G3470	3.6 GHz	3 MB	53 W	Intel® HD Graphics	350 MHz	DDR3-1333/1600, DDR3L-1333/1600 @ 1.5V	C226/Q87/H81
			2/2	G3460T	3 GHz	3 MB	35 W		200 MHz		
			2/2	G3460	3.5 GHz	3 MB	53 W		350 MHz		
			2/2	G3450T	2.9 GHz	3 MB	35 W		200 MHz		
			2/2	G3450	3.4 GHz	3 MB	53 W		350 MHz		
			2/2	G3440T	2.8 GHz	3 MB	35 W		200 MHz		
			2/2	G3440	3.3 GHz	3 MB	53 W		350 MHz		
			2/2	G3430	3.3 GHz	3 MB	53 W		350 MHz		
			2/2	G3420T	2.7 GHz	3 MB	35 W		200 MHz		
			2/2	G3420	3.2 GHz	3 MB	53 W		350 MHz		
			2/2	G3260T	2.9 GHz	3 MB	35 W		200 MHz		
			2/2	G3260	3.3 GHz	3 MB	53 W		350 MHz		
			2/2	G3258	3.2 GHz	3 MB	53 W		350 MHz		
			2/2	G3250T	2.8 GHz	3 MB	35 W		200 MHz		
			2/2	G3250	3.2 GHz	3 MB	53 W		350 MHz		
			2/2	G3240T	2.7 GHz	3 MB	35 W		200 MHz		
			2/2	G3240	3.1 GHz	3 MB	53 W		350 MHz		
			2/2	G3220T	2.6 GHz	3 MB	35 W		200 MHz		
			2/2	G3220	3 GHz	3 MB	53 W		350 MHz		
	Celeron®		2/2	G1820	2.7 GHz	2 MB	53 W	350 MHz	DDR3-1333, DDR3L-1333 @ 1.5V		
			2/2	G1820T	2.4 GHz	2 MB	35 W	200 MHz			
			2/2	G1830	2.8 GHz	2 MB	53 W	350 MHz			
			2/2	G1840	2.8 GHz	2 MB	53 W	350 MHz			
			2/2	G1840T	2.5 GHz	2 MB	35 W	200 MHz			
			2/2	G1850	2.9 GHz	2 MB	53 W	350 MHz			
LGA1155	Core™ i7	22nm Ivy Bridge	4/8	i7-3770T	2.5 GHz	8 MB	45 W	-	1.15 GHz	DDR3-1333/1600	Q77/Q67/B65/H61
			4/8	i7-3770S	3.1 GHz	8 MB	65 W	-	1.15 GHz		
			4/8	i7-3770K	3.5 GHz	8 MB	77 W	-	1.15 GHz		
			4/8	i7-3770	3.4 GHz	8 MB	77 W	-	1.15 GHz		
	Core™ i7	32nm Sandy Bridge	4/8	i7-2700K	3.5 GHz	8 MB	95 W	-	1.35 GHz	DDR3-1066/1333	
			4/8	i7-2600S	2.8 GHz	8 MB	65 W	-	1.35 GHz		
			4/8	i7-2600K	3.4 GHz	8 MB	95 W	-	1.35 GHz		
			4/8	i7-2600	3.4 GHz	8 MB	95 W	-	1.35 GHz		
	Core™ i5	22nm Ivy Bridge	4/4	i5-3570T	2.3 GHz	6 MB	45 W	-	1.15 GHz	DDR3-1333/1600	
			4/4	i5-3570S	3.1 GHz	6 MB	65 W	-	1.15 GHz		
			4/4	i5-3570K	3.4 GHz	6 MB	77 W	-	1.15 GHz		
			4/4	i5-3570	3.4 GHz	6 MB	77 W	-	1.15 GHz		
			4/4	i5-3550S	3 GHz	6 MB	65 W	-	1.15 GHz		
			4/4	i5-3550	3.3 GHz	6 MB	77 W	-	1.15 GHz		
			4/4	i5-3475S	2.9 GHz	6 MB	65 W	-	1.1 GHz		
			2/4	i5-3470T	2.9 GHz	3 MB	35 W	-	1.1 GHz		
			4/4	i5-3470S	2.9 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-3470	3.2 GHz	6 MB	77 W	-	1.1 GHz		
			4/4	i5-3450S	2.8 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-3450	3.1 GHz	6 MB	77 W	-	1.1 GHz		
			4/4	i5-3350P	3.1 GHz	6 MB	69 W	-	1.05 GHz		
			4/4	i5-3330S	2.7 GHz	6 MB	65 W	-	1.05 GHz		
			4/4	i5-3330	3 GHz	6 MB	77 W	-	1.05 GHz		
	Core™ i5	32nm Sandy Bridge	4/4	i5-2550K	3.4 GHz	6 MB	95 W	-	1.25 GHz	DDR3-1066/1333	
			4/4	i5-2500T	2.3 GHz	6 MB	45 W	-	1.25 GHz		
			4/4	i5-2500S	2.7 GHz	6 MB	65 W	-	1.1 GHz		
			4/4	i5-2500K	3.3 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2500	3.3 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2450P	3.2 GHz	6 MB	95 W	-	1.1 GHz		
			4/4	i5-2405S	2.5 GHz	6 MB	65 W	-	1.1 GHz		
4/4			i5-2400S	2.5 GHz	6 MB	65 W	-	1.1 GHz			
4/4			i5-2400	3.1 GHz	6 MB	95 W	-	1.1 GHz			
2/4			i5-2390T	2.7 GHz	3 MB	35 W	-	1.1 GHz			
4/4			i5-2380P	3.1 GHz	6 MB	95 W	-	1.1 GHz			
4/4			i5-2320	3 GHz	6 MB	95 W	-	1.1 GHz			
4/4			i5-2310	2.9 GHz	6 MB	95 W	-	1.1 GHz			
4/4			i5-2300	2.8 GHz	6 MB	95 W	-	1.1 GHz			

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Desktop Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Graphics Base Frequency	Memory Types	Chipset		
LGA1155	Core™ i3	22nm Ivy Bridge	2/4	i3-3240T	2.9 GHz	3 MB	35 W	1.05 GHz	DDR3-1333/1600	Q77/Q67/B65/H61		
			2/4	i3-3240	3.4 GHz	3 MB	55 W	1.05 GHz				
			2/4	i3-3225	3.3 GHz	3 MB	55 W	1.05 GHz				
			2/4	i3-3220T	2.8 GHz	3 MB	35 W	1.05 GHz				
	Core™ i3	32nm Sandy Bridge	2/4	i3-3220	3.3 GHz	3 MB	55 W	1.05 GHz	DDR3-1066/1333			
			2/4	i3-2130	3.4 GHz	3 MB	65 W	1.1 GHz				
			2/4	i3-2125	3.3 GHz	3 MB	65 W	1.1 GHz				
			2/4	i3-2120T	2.6 GHz	3 MB	35 W	1.1 GHz				
			2/4	i3-2120	3.3 GHz	3 MB	65 W	1.1 GHz				
			2/4	i3-2105	3.1 GHz	3 MB	65 W	1.1 GHz				
			2/4	i3-2102	3.1 GHz	3 MB	65 W	1.1 GHz				
			2/4	i3-2100T	2.5 GHz	3 MB	35 W	1.1 GHz				
	Pentium®	22nm Ivy Bridge	2/2	i3-2100	3.1 GHz	3 MB	65 W	1.1 GHz	DDR3-1333/1600			
			2/2	G2120	3.1 GHz	3 MB	55 W	1.05 GHz				
LGA1155	Pentium®	32nm Sandy Bridge	2/2	G2100T	2.6 GHz	3 MB	35 W	1.05 GHz	DDR3-1066		Q77/Q67/B65/H61	
			2/2	G870	3.1 GHz	3 MB	65 W	1.1 GHz				
			2/2	G860T	2.6 GHz	3 MB	35 W	1.1 GHz				
			2/2	G860	3 GHz	3 MB	65 W	1.1 GHz				
			2/2	G850	2.9 GHz	3 MB	65 W	1.1 GHz				
			2/2	G840	2.8 GHz	3 MB	65 W	1.1 GHz				
			2/2	G645T	2.5 GHz	3 MB	35 W	1.1 GHz				
			2/2	G645	2.9 GHz	3 MB	65 W	1.1 GHz				
			2/2	G640T	2.4 GHz	3 MB	35 W	1.1 GHz				
			2/2	G640	2.8 GHz	3 MB	65 W	1.1 GHz				
			2/2	G632	2.7 GHz	3 MB	65 W	1.1 GHz				
			2/2	G630T	2.3 GHz	3 MB	35 W	1.1 GHz				
			2/2	G630	2.7 GHz	3 MB	65 W	1.1 GHz				
			2/2	G622	2.6 GHz	3 MB	65 W	1.1 GHz				
	Celeron®	22nm Ivy Bridge	2/2	G620T	2.2 GHz	3 MB	35 W	1.1 GHz				
			2/2	G620	2.6 GHz	3 MB	65 W	1.1 GHz				
			2/2	G1610	2.6 GHz	2 MB	55 W	1.05 GHz				
			2/2	G1620	2.7 GHz	2 MB	55 W	1.05 GHz				
			2/2	G1610T	2.3 GHz	2 MB	35 W	1.05 GHz				
			Celeron®	32nm Sandy Bridge	2/2	G555	2.7 GHz	2 MB	65 W	1 GHz		
	2/2	G550T			2.2 GHz	2 MB	35 W	1 GHz				
	2/2	G550			2.6 GHz	2 MB	65 W	1 GHz				
	2/2	G540T			2.1 GHz	2 MB	35 W	1 GHz				
	2/2	G540			2.5 GHz	2 MB	65 W	1 GHz				
	2/2	G530T			2 GHz	2 MB	35 W	1 GHz				
	2/2	G530			2.4 GHz	2 MB	65 W	1 GHz				
1/2	G465	1.9 GHz			1.5 MB	35 W	1 GHz					
1/2	G460	1.8 GHz			1.5 MB	35 W	1 GHz					
1/1	G440	1.6 GHz			1 MB	35 W	1 GHz					
LGA1156	Core™ i7	45nm			Quad Core	i7-880	2.93G	8M	95W	-	DDR3-1333/1600	Q57
						i7-875K	2.93G	8M	95W	-		
			i7-870S	2.66G		8M	82W	-				
			i7-870	2.93G		8M	95W	-				
			i7-860S	2.53G		8M	82W	-				
			i7-860	2.8G		8M	95W	-				
	Core™ i5	32nm	Dual Core	i5-760	2.8G	8M	95W	-				
				i5-750S	2.4G	8M	82W	-				
				i5-750	2.66G	8M	95W	-				
				i5-680	3.6G	4M	73W	733MHz				
	Core™ i5	32nm	Dual Core	i5-670	3.46G	4M	73W	733MHz				
				i5-661	3.33G	4M	87W	900MHz				
				i5-660	3.33G	4M	73W	733MHz				
				i5-665K	3.2G	4M	73W	733MHz				
				i5-650	3.2G	4M	73W	733MHz				
				i3-560	3.33G	4M	73W	733MHz				
	Core™ i3	32nm	Dual Core	i3-550	3.2G	4M	73W	733MHz				
				i3-540	3.06G	4M	73W	733MHz				
				i3-530	2.93G	4M	73W	733MHz				
				G6960	2.933G	3M	73W	533MHz				
Pentium®	32nm	Dual Core	G6950	2.8G	3M	73W	533MHz					
									DDR3-1333			

Yellow means long-term support

*HM65/HM55 chipset doesn't support Intel® AMT feature

» ULT/UP3 CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1449	Core™ i7	10nm Tiger Lake-UP3	4/8	i7-1185G7E	2.8GHz/ 1.8GHz/ 1.2GHz	12MB	28W/ 15W/ 12W	Intel® Iris® Xe Graphics 96 EU 4x4k or 2x8k Displays 2 VDBOX	1.35 GHz	DDR4-3200, LPDDR4x-4267	-
				i7-1185GRE						DDR4-3200, LPDDR4x-4267, In-Band ECC	-
	Core™ i5		4/8	i5-1145G7E	2.6GHz/ 1.5GHz/ 1.1GHz	8MB	28W/ 15W/ 12W	Intel® Iris® Xe Graphics 80 EU 4x4k or 2x8k Displays 2 VDBOX Intel® Iris® Xe Graphics 80 EU 4x4k or 1x8k Displays 2 VDBOX	1.30 GHz	DDR4-3200, LPDDR4x-4267	-
				i5-1145GRE						DDR4-3200, LPDDR4x-4267, In-Band ECC	-
	Core™ i3		2/4	i3-1115G4E	3.0GHz/ 2.2GHz/ 1.7 GHz	6MB	28W/ 15W/ 12W	Intel® UHD Graphics 48EU 4x4k or 1x8k Displays 1 VDBOX	1.25 GHz	DDR4-3200, LPDDR4x-3733	-
				i3-1115GRE						DDR4-3200, LPDDR4x-3733, In-Band ECC	-
	Celeron®		2/2	6305E	1.8 GHz	4MB	15W	Intel® UHD Graphics 48EU 4x4k or 1x8k Displays 1 VDBOX	1.25 GHz	DDR4-3200, LPDDR4x-3733	-
	FCBGA1528		Core™ i7	14nm Whiskey Lake	4/8	i7-8565U	1.8GHz	8MB	15W	Intel® UHD Graphics 620	300 MHz
4/8		i7-8665U			1.9GHz	8MB	15W	-			
4/8		i7-8665UE			1.7GHz	8MB	15W	-			
Core™ i5		4/8	i5-8265U		1.6GHz	6MB	15W	-			
		4/8	i5-8365U		1.6GHz	6MB	15W	-			
		4/8	i5-8365UE		1.6GHz	6MB	15W	-			
Core™ i3		2/4	i3-8145U		2.10 GHz	4MB	15W	-			
		2/4	i3-8145UE		2.2GHz	4MB	15W	-			
Pentium®		2/4	5405U		2.3GHz	2MB	15W	Intel® UHD Graphics 610	DDR4-2133, LPDDR3-1866	-	
Celeron®		2/2	4205U		1.8GHz	2MB	15W		DDR4-2133, LPDDR3-1866	-	
FCBGA1356	Core™ i7	14nm Coffee lake	4/8	i7-8559U	2.70 GHz	8MB	28W	Intel® Iris™ Plus Graphics 655	300 MHz	DDR4-2400, LPDDR3-2133	-
	Core™ i5		4/8	i5-8269U	2.60 GHz	6MB	28W				-
			4/8	i5-8259U	2.30 GHz	6MB	28W				-
	Core™ i3		2/4	i3-8109U	3.00 GHz	4MB	28W				-
FCBGA1356	Core™ i7	14nm Kabylake	2/4	i7-7660U	2.5GHz	4MB	15W	Intel® Iris™ Plus Graphics 640	300 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i7-7600U	2.8GHz	4MB	15W	Intel® HD Graphics 620			-
			2/4	i7-7567U	3.5GHz	4MB	28W	Intel® Iris™ Plus Graphics 650			-
			2/4	i7-7560U	2.4GHz	4MB	15W	Intel® Iris™ Plus Graphics 640			-
			2/4	i7-7500U	2.70 GHz	4MB	15 W	Intel® HD Graphics 620			-
	Core™ i5		2/4	i5-7360U	2.3GHz	4MB	15W	Intel® Iris™ Plus Graphics 640			-
			2/4	i5-7300U	2.6GHz	3MB	15W	Intel® HD Graphics 620			-
			2/4	i5-7287U	3.3GHz	4MB	28W	Intel® Iris™ Plus Graphics 650			-
			2/4	i5-7267U	3.1GHz	4MB	28W	Intel® Iris™ Plus Graphics 650			-
			2/4	i5-7260U	2.2GHz	4MB	15W	Intel® Iris™ Plus Graphics 640			-
			2/4	i5-7200U	2.50 GHz	3MB	15W	Intel® HD Graphics 620		-	
			2/4	i3-8130U	2.20 GHz	4MB	15W			DDR4-2400, LPDDR3-2133	-
	Core™ i3		2/4	i3-7130U	2.7GHz	3MB	15W	Intel® Iris™ Plus Graphics 650		DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i3-7167U	2.8GHz	3MB	28W				-
			2/4	i3-7100U	2.40 GHz	3MB	15W				Intel® HD Graphics 620
	Pentium®		2/4	4415U	2.3GHz	2MB	15W	Intel® HD Graphics 610			-
	Celeron®		2/2	3965U	2.2GHz	2MB	15W				-
	2/2		3865U	1.8GHz	2MB	15W	-				
FCBGA1356	Core™ i7	14nm Skylake	2/4	i7-6500U	2.50 GHz	4 MB	15 W	Intel® HD Graphics 520	300 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i7-6560U	2.20 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
			2/4	i7-6567U	3.30 GHz	4 MB	28 W	Intel® Iris™ Graphics 550			-
			2/4	i7-6600U	2.60 GHz	4 MB	15 W	Intel® HD Graphics 520			-
			2/4	i7-6660U	2.40 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
			2/4	i7-6650U	2.20 GHz	4 MB	15 W				-

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*HM65/HM55 chipset doesn't support Intel® AMT feature

» ULT/UP3 CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset
FCBGA1356	Core™ i5	14nm Skylake	2/4	i5-6287U	3.10 GHz	4 MB	28 W	Intel® Iris™ Graphics 550	300 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	-
			2/4	i5-6267U	2.90 GHz	4 MB	28 W				-
			2/4	i5-6260U	1.80 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
			2/4	i5-6200U	2.30 GHz	3 MB	15 W	Intel® HD Graphics 520			-
			2/4	i5-6300U	2.40 GHz	3 MB	15 W				-
			2/4	i5-6360U	2.00 GHz	4 MB	15 W	Intel® Iris™ Graphics 540			-
	Core™ i3		2/4	i3-6006U	2.00 GHz	3 MB	15 W	Intel® HD Graphics 520		DDR4-1866/2133, LPDDR3-1600/1866	-
			2/4	i3-6167U	2.70 GHz	3 MB	28 W	Intel® Iris™ Graphics 550			-
			2/4	i3-6157U	2.40 GHz	3 MB	28 W				-
			2/4	i3-6100U	2.30 GHz	3 MB	15 W	Intel® HD Graphics 520			-
	Pentium®		2/4	4405U	2.10 GHz	2 MB	15 W	Intel® HD Graphics 510		DDR4-1866/2133, LPDDR3-1600/1866, DDR3L-1333/1600	-
	Celeron®		2/2	3855U	1.60 GHz	2 MB	15 W				-
2/2		3955U	2.00 GHz	2 MB	15 W		-				
FCBGA1168	Core™ i7	14nm Broadwell	2/4	i7-5650U	2.2 GHz	4 MB	15 W	Intel® HD Graphics 6000	300 MHz	DDR3L 1333/1600, LPDDR3 1600/1866	-
	Core™ i5		2/4	i5-5350U	1.8 GHz	3 MB	15 W		300 MHz		-
	Core™ i3		2/4	i3-5010U	2.1 GHz	3 MB	15 W	Intel® HD Graphics 5500	300 MHz	DDR3L 1333/1600, LPDDR 1333/1600	-
	Celeron®		2/2	3765U	1.9 GHz	2 MB	15 W	Intel® HD Graphics	300 MHz		-
	Core™ i7	22nm Haswell	2/4	i7-4650U	1.7 GHz	4 MB	15 W	Intel® HD Graphics 5000	200 MHz	DDR3L 1333/1600, LPDDR3 1333/1600	-
	Core™ i5		2/4	i5-4300U	1.9 GHz	3 MB	15 W	Intel® HD Graphics 4400	200 MHz		-
	Core™ i3		2/4	i3-4010U	1.7 GHz	3 MB	15 W		200 MHz		-
	Celeron®		2/2	2980U	1.6 GHz	2 MB	15 W	Intel® HD Graphics	200 MHz		-

» Mobile Core™ i9/i7/i5/i3/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset	
FCLGA1151	Xeon® E	14nm Coffee Lake refresh	8/16	E-2288G	3.70 GHz	16MB	95W	Intel® UHD Graphics P630	350MHz	DDR4-2666	C246	
			6/12	E-2286G	4.00 GHz	12MB	95W	N/A	N/A		C240	
			8/16	2278GE	3.30 GHz	16MB	80W	Intel® UHD Graphics P630	350MHz		C246	
			8/16	2278GEL	2.00 GHz	16MB	35W				C240	
			8/16	E-2278G	3.40 GHz	16MB	80W	N/A	N/A		C240	
			6/12	E-2276G	3.80 GHz	12MB	80W	Intel® UHD Graphics P630	350MHz		C246	
			4/8	E-2274G	4.00 GHz	8MB	83W					
			6/12	E-2246G	3.60 GHz	12MB	80W	N/A	N/A		C240	
			4/8	E-2244G	3.80 GHz	8MB	71W					
			6/12	E-2236	3.40 GHz	12MB	80W	Intel® UHD Graphics P630	350MHz		C246	
			4/8	E-2234	3.60 GHz	8MB	71W					
			6/6	E-2226G	3.40 GHz	12MB	80W	Intel® UHD Graphics P630	350MHz		C246	
			6/6	E-2226GE	3.40 GHz	12MB	80W					
			4/4	E-2224	3.40 GHz	8MB	71W	N/A	N/A		C240	
FCBGA1440	Xeon® E	14nm Coffee lake	6/12	E-2186M	2.90 GHz	12MB	45W	Intel® UHD Graphics P630	350 MHz	DDR4-2666, LPDDR3-2133	CM246	
			6/12	E-2176M	2.70 GHz	12MB	45W					
	Xeon® E3	14nm Kabylake	4/8	E3-1535MV6	3.10 GHz	8 MB	45W	Intel® HD Graphics P630		DDR4-2400, LPDDR3-2133, DDR3L-1600	CM236	
			4/8	E3-1505MV6	3.00 GHz	8 MB	45 W					
			4/8	E3-1505LV6	2.20 GHz	8 MB	25 W			DDR4-2400		
			4/4	E3-1501LV6	2.10 GHz	6 MB	25 W					
			4/4	E3-1501MV6	2.90 GHz	6 MB	45 W					
	Xeon® E3	14nm Skylake	4/8	E3-1575MV5	3.00 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580		DDR4-2133, LPDDR3-1866, DDR3L-1600	CM236	
			4/8	E3-1545MV5	2.90 GHz	8 MB	45 W	Intel® HD Graphics P530				
			4/8	E3-1535MV5	2.90 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics P580				
			4/8	E3-1515MV5	2.80 GHz	8 MB	45 W	Intel® HD Graphics P530				
			4/8	E3-1505MV5	2.80 GHz	8 MB	45 W					

Yellow means long-term support

*HM65/HM55 chipset doesn't support Intel® AMT feature

Mobile Core™ i9/i7/i5/i3/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/Threads	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset	
FCBGA1440	Core™ i9	14nm Coffee lake	6/12	i9-8950HK	2.90 GHz	12MB	45W	Intel® UHD Graphics 630	350 MHz	DDR4-2666, LPDDR3-2133	CM246	
	Core™ i7		6/12	i7-8850H	2.60 GHz	9MB	45W					
			6/12	i7-8750H	2.20 GHz	9MB	45W					
	Core™ i5		6/12	i7-8700B	3.20 GHz	12MB	65W			DDR4-2666		
			6/6	i5-8500B	3.00 GHz	9MB	65W					DDR4-2666, LPDDR3-2133
			4/8	i5-8400H	2.50 GHz	8MB	45W					
			6/6	i5-8400B	2.80 GHz	9MB	65W					
			4/8	i5-8300H	2.30 GHz	8MB	45W					
Core™ i3	4/4	i3-8100H	3.00 GHz	6MB	35W	DDR4-2666, LPDDR3-2133						
FCBGA1440	Core™ i7	14nm Kabylake	4/8	i7-7920HQ	3.10 GHz	8 MB	45W	Intel® HD Graphics 630	350MHz	DDR4-2400, LPDDR3-2133, DDR3L-1600	CM236	
			4/8	i7-7820HQ	2.90 GHz	8 MB	45W					
			4/8	i7-7820HK	2.90 GHz	8 MB	45W					
			4/8	i7-7820EQ	3.00 GHz	8 MB	45W					
			4/8	i7-7700HQ	2.80 GHz	6 MB	45W			DDR4-2400, LPDDR3-2133, DDR3L-1600		
	Core™ i5		4/4	i5-7442EQ	2.10 GHz	6 MB	25W					
			4/4	i5-7440HQ	2.80 GHz	6 MB	45W			DDR4-2400, LPDDR3-2133, DDR3L-1600		
			4/4	i5-7440EQ	2.90 GHz	6 MB	45W					
			Core™ i3	4/4	i5-7300HQ	2.50 GHz	6 MB			45W		DDR4-2400, LPDDR3-2133, DDR3L-1600
	2/4			i3-7102E	2.10 GHz	3 MB	25W					
2/4	i3-7100E	2.90 GHz		3 MB	35W	DDR4-2400						
FCBGA1440	Core™ i7	14nm Skylake	4/8	i7-6820EQ	2.80 GHz	8 MB	45 W	Intel® HD Graphics 530	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	QM170/HM170	
			4/8	i7-6822EQ	2.00 GHz	8 MB	25 W					
			4/8	i7-6700HQ	2.60 GHz	6 MB	45 W	Intel® Iris™ Pro Graphics 580				
			4/8	i7-6770HQ	2.60 GHz	6 MB	45 W					
			4/8	i7-6820HK	2.70 GHz	8 MB	45 W	Intel® HD Graphics 530				
			4/8	i7-6820HQ	2.70 GHz	8 MB	45 W					
			4/8	i7-6870HQ	2.70 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics 580				
			4/8	i7-6920HQ	2.90 GHz	8 MB	45 W					
4/8	i7-6970HQ	2.80 GHz	8 MB	45 W	Intel® Iris™ Pro Graphics 580							
FCBGA1440	Core™ i5	14nm Skylake	4/4	i5-6442EQ	1.90 GHz	6 MB	25 W	Intel® HD Graphics 530	350 MHz	DDR4-2133, LPDDR3-1866, DDR3L-1600	QM170/HM170	
			4/4	i5-6440EQ	2.70 GHz	6 MB	45 W					
			4/4	i5-6300HQ	2.30 GHz	6 MB	45 W	Intel® Iris™ Pro Graphics 580				
			4/4	i5-6350HQ	2.30 GHz	6 MB	45 W					
	Core™ i3		2/4	i3-6102E	1.90 GHz	3 MB	25 W	Intel® HD Graphics 530				
			2/4	i3-6100E	2.70 GHz	3 MB	35 W					
			2/4	i3-6100H	2.70 GHz	3 MB	35 W					
	Celeron®		2/2	G3900E	2.40 GHz	2 MB	35 W	Intel® HD Graphics 510		DDR4-1866/2133, DDR3L-1333/1600 @ 1.35V		
			2/2	G3902E	1.60 GHz	2 MB	25 W					
FCBGA1364	Core™ i7	22nm Haswell	4/8	i7-4700EC	2.7 GHz	8 MB	43 W	Intel® HD Graphics 4600	400 MHz	DDR3L 1333/1600	QM87/HM86	
			4/8	i7-4700EQ	2.4 GHz	6 MB	47 W		400 MHz			
			4/8	i7-4702EC	2 GHz	8 MB	27 W	None	400 MHz			
	Core™ i5		2/4	i5-4422E	1.8 GHz	3 MB	25 W	Intel® HD Graphics 4600	400 MHz			
			2/4	i5-4410E	2.9 GHz	3 MB	37 W		400 MHz			
			2/4	i5-4402EC	2.5 GHz	4 MB	27 W	None	-			
			2/4	i5-4402E	1.6 GHz	3 MB	25 W	Intel® HD Graphics 4600	400 MHz			
			2/4	i5-4400E	2.7 GHz	3 MB	37 W		400 MHz			
			Core™ i3	2/4	i3-4100E	2.4 GHz	3 MB		37 W			Intel® HD Graphics 4600
	2/4			i3-4102E	1.6 GHz	3 MB	25 W		400 MHz			
	2/4			i3-4110E	2.6 GHz	3 MB	37 W		400 MHz			
	2/4			i3-4112E	1.8 GHz	3 MB	25 W		400 MHz			
	Celeron®			2/2	2002E	1.5 GHz	2 MB	25 W	Intel® HD Graphics			
			2/2	2000E	2.2 GHz	2 MB	37 W	400 MHz				

Yellow means long-term support

*HM65/HM55 chipset doesn't support Intel® AMT feature

Mobile Core™ i7/i5/i3/Celeron® CPU List

Supported Sockets	Brand	Process	Cores/Threads	Package Type	Processor Number	Processor Base Frequency	Cache	TDP	Processor Graphics	Graphics Base Frequency	Memory Types	Chipset			
rPGA988B	Core™ i7 Extreme Edition	22nm Ivy Bridge	4/8	PGA	i7-3940XM	3 GHz	8 MB	55 W	-	1.35 GHz	DDR3/L-RS 1333/1600	QM77/ QM67			
	Core™ i7 Extreme Edition	32nm Sandy Bridge	4/8		i7-3920XM	2.9 GHz	8 MB	55 W	-	1.3 GHz	DDR3-1066/1333/1600				
	Core™ i7 Extreme Edition	32nm Sandy Bridge	4/8		i7-2960XM	2.7 GHz	8 MB	55 W	-	1.3 GHz					
	Core™ i7	22nm Ivy Bridge	4/8		i7-2920XM	2.5 GHz	8 MB	55 W	-	1.3 GHz			DDR3/L-RS 1333/1600	QM77/ QM67/ HM65	
			4/8		i7-3840QM	2.8 GHz	8 MB	45 W	-	1.3 GHz					
			4/8		i7-3820QM	2.7 GHz	8 MB	45 W	-	1.25 GHz					
			4/8		i7-3740QM	2.7 GHz	6 MB	45 W	-	1.3 GHz					
			4/8		i7-3720QM	2.6 GHz	6 MB	45 W	-	1.25 GHz					
			4/8		i7-3632QM	2.2 GHz	6 MB	35 W	-	1.15 GHz					
			4/8		i7-3630QM	2.4 GHz	6 MB	45 W	-	1.15 GHz					
			4/8		i7-3612QM	2.1 GHz	6 MB	35 W	-	1.1 GHz					
			4/8		i7-3610QM	2.3 GHz	6 MB	45 W	-	1.1 GHz					
		2/4	i7-3610QE		2.3 GHz	6 MB	45 W	-	1.0 GHz	DDR3/L 1333/1600	DDR3/L-RS 1333/1600				
		32nm Sandy Bridge	i7-3520M		2.9 GHz	4 MB	35 W	-	1.25 GHz	DDR3-1066/1333/1600					
	i7-2860QM		2.5 GHz		8 MB	45 W	-	1.3 GHz							
	i7-2820QM		2.3 GHz		8 MB	45 W	-	1.3 GHz							
	i7-2760QM		2.4 GHz		6 MB	45 W	-	1.3 GHz							
	i7-2720QM		2.2 GHz		6 MB	45 W	-	1.3 GHz							
	i7-2710QE		2.1 GHz		6 MB	45 W	-	1.2 GHz							
	i7-2670QM		2.2 GHz		6 MB	45 W	-	1.1 GHz							
	i7-2640M		2.8 GHz		4 MB	35 W	-	1.3 GHz							
	Core™ i5	22nm Ivy Bridge	4/8		i7-2630QM	2 GHz	6 MB	45 W	-	1.1 GHz	DDR3-1066/1333				
			2/4		i7-2620M	2.7 GHz	4 MB	35 W	-	1.3 GHz					
			2/4		i5-3610ME	2.7 GHz	3 MB	35 W	-	950 MHz			DDR3/L 1333/1600	QM77/ QM67/ HM65	
			2/4		i5-3360M	2.8 GHz	3 MB	35 W	-	1.2 GHz			DDR3/L-RS 1333/1600		
			2/4		i5-3320M	2.6 GHz	3 MB	35 W	-	1.2 GHz					
		32nm Sandy Bridge	2/4		i5-3210M	2.5 GHz	3 MB	35 W	-	1.1 GHz	DDR3-1066/1333				
			2/4		i5-2540M	2.6 GHz	3 MB	35 W	-	1.3 GHz					
			2/4		i5-2520M	2.5 GHz	3 MB	35 W	-	1.3 GHz					
			2/4		i5-2510E	2.5 GHz	3 MB	35 W	-	1.1 GHz					
			2/4		i5-2450M	2.5 GHz	3 MB	35 W	-	1.3 GHz					
			2/4		i5-2435M	2.4 GHz	3 MB	35 W	-	1.3 GHz					
	rPGA988B	Core™ i3	22nm Ivy Bridge		2/4	PGA	i3-3120M	2.5 GHz	3 MB	35 W	-	1.1 GHz	DDR3/L-RS 1333/1600	QM77/ QM67/ HM65	
		Core™ i3	32nm Sandy Bridge		2/4		i3-3110M	2.4 GHz	3 MB	35 W	-	1 GHz	DDR3-1066/1333		
					2/4		i3-2370M	2.4 GHz	3 MB	35 W	-	1.15 GHz			
2/4				i3-2350M	2.3 GHz		3 MB	35 W	-	1.15 GHz					
2/4				i3-2330M	2.2 GHz		3 MB	35 W	-	1.1 GHz					
2/4				i3-2330E	2.2 GHz		3 MB	35 W	-	1.05 GHz					
2/4				i3-2328M	2.2 GHz		3 MB	35 W	-	1.1 GHz					
2/4				i3-2312M	2.1 GHz		3 MB	35 W	-	1.1 GHz					
2/4				i3-2310M	2.1 GHz		3 MB	35 W	-	1.1 GHz					
Celeron®		32nm Sandy Bridge	2/2	B840	1.9 GHz		2 MB	35 W	-	1 GHz					
			2/2	B830	1.8 GHz		2 MB	35 W	-	1.05 GHz					
			2/2	B820	1.7 GHz		2 MB	35 W	-	1.05 GHz					
			2/2	B815	1.6 GHz		2 MB	35 W	-	1.05 GHz					
			2/2	B810	1.6 GHz		2 MB	35 W	-	950 MHz					
			2/2	B800	1.5 GHz		2 MB	35 W	-	1 GHz					
			1/1	B720	1.7 GHz		2 MB	35 W	-	1 GHz					
			1/1	B710	1.6 GHz		1.5 MB	35 W	-	1 GHz					
	Socket988A		Core™ i7 Extreme Edition	45nm	Quad	PGA	i7-940XM	2.13G	8M	55W	-	-	1333 MHz 1066 MHz	QM57/ HM55	
Core™ i7							i7-920XM	2.0G	8M	55W	-	-			
							i7-840QM	1.86G	8M	45W	-	-			
							i7-820QM	1.73G	8M	45W	-	-			
							i7-740QM	1.73G	6M	45W	-	-			
							i7-720QM	1.6G	6M	45W	-	-			
							i7-640M	2.8G	4M	35W	-	-			
							i7-620M	2.66G	4M	35W	-	-			
Core™ i5		Dual	i5-580M		2.66G		3M	35W	-	500MHz	1066 MHz 800 MHz				
			i5-560M		2.66G		3M	35W	-						
			i5-540M		2.53G		3M	35W	-						
			i5-520M		2.4G		3M	35W	-						
			i5-480M		2.66G		3M	35W	-						
			i5-460M		2.53G		3M	35W	-						
			i5-450M		2.4G		3M	35W	-						
			i5-430M		2.26G		3M	35W	-						
Core™ i3			i3-390M		2.66G		3M	35W	-						
			i3-380M		2.53G		3M	35W	-						
			i3-370M		2.4G		3M	35W	-						
			i3-350M		2.26G		3M	35W	-						
			i3-330M		2.13G		3M	35W	-						
			Celeron®		P4600		2.0G	2M	35W			-			
	P4500	1.86G	2M	35W	-										

Yellow means long-term support

*HM65/HM55 chipset doesn't support Intel® AMT feature

TANK AIoT Developer Kit



intel
partner
Titanium

Model		TANK AIoT Dev. Kit
Chassis	Color	Black C + Silver
	Dimensions (WxDxH)	121.5 x 255.2 x 205 mm (4.7" x 10" x 8")
	System Fan	Fan
	Chassis Construction	Extruded aluminum alloys
	Weight (Net/Gross)	4.2 kg (9.26 lbs)/ 6.3 kg (13.89 lbs)
Motherboard	CPU	Intel® Xeon® E3-1268LV5 2.4GHz (up to 3.4 GHz, Quad Core, TDP 35W) Intel® Core™ i7-7700T 2.9GHz (up to 3.8 GHz, Quad Core, TDP 35W) Intel® Core™ i5-7500T 2.7GHz (up to 3.3 GHz, Quad Core, TDP 35W) Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4GHz, quad-core, TDP 35W) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3GHz, quad-core, TDP 35W)
		Intel® Q170/C236 with Xeon® E3 only
		2 x 260-pin DDR4 SO-DIMM, 8 GB pre-installed (for i5/i5KBL/i7 sku) 16 GB pre-installed (for i7KBL sku) 32 GB pre-installed (for E3 sku)
		System Memory
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay, RAID 0/1 support (1x 2.5" 1TB HDD pre-installed)
I/O Interfaces	USB 3.2 Gen 1	4
	USB 2.0	4
	Ethernet	2 x RJ-45 LAN1: Intel® I219LM PCIe controller with Intel® vPro™ support LAN2 (iRIS): Intel® I210 PCIe controller
		4 x RS-232 (2 x RJ-45, 2 x DB-9 w/2.5KV isolation protection) 2 x RS-232/422/485 (DB-9)
	Digital I/O	8-bit digital I/O, 4-bit input / 4-bit output
	Display	1 x VGA 1 x HDMI/DP 1 x iDP (optional)
	Resolution	VGA: Up to 1920 x 1200@60Hz HDMI/DP: Up to 3840x2160@30Hz / 4096x2304@60Hz
	Audio	1 x Line-out, 1 x Mic-in
	TPM	1x Infineon TPM 2.0 Module
	Backplane	2 x PCIe x8
Expansions	PCIe Mini	1 x Half-size PCIe Mini slot 1 x Full-size PCIe Mini slot (supports mSATA, colay with SATA)
Power	Power Input	DC Jack: 9 V~36 V DC Terminal Block: 9 V~36 V DC
	Power Consumption	19 V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power output	5V@3A or 12V@3A
Reliability	Mounting	Wall mount
	Operating Temperature	E3-1268LV5 -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing i7-7700T -20°C ~ 35°C with air flow (SSD), 10% ~ 95%, non-condensing i5-7500T -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i7-6700TE -20°C ~ 45°C with air flow (SSD), 10% ~ 95%, non-condensing i5-6500TE -20°C ~ 60°C with air flow (SSD), 10% ~ 95%, non-condensing
	Operating Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
OS	Safety/EMC	CE/FCC/RoHS
	Supported OS	Win10/Linux Ubuntu 16.04 LTS

DRPC-230-ULT5



intel
partner
Titanium

Model		DRPC-230-ULT5-i5/S	DRPC-230-ULT5-i5	DRPC-230-ULT5-CS
Chassis	Color	Black & Silver		
	Dimensions (WxDxH)	81 x 150 x 190	127 x 150 x 190	81 x 150 x 190
	System Fan	Fanless		
	Chassis Construction	Extruded aluminum alloy		
Motherboard	CPU	Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1 GHz, quad-core, TDP 15W)		Intel® Celeron™ 4205U 1.8 GHz (dual-core, TDP 15W)
	Chipset	SoC		
	System Memory	2 x SO-DIMM DDR4 2400 (8GB pre-installed)		
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay		
I/O Interfaces	USB	6 x USB 3.2 Gen2		4 x USB 3.2 Gen2 / 2 x USB 2.0
	Ethernet	3 x RJ-45: 1 x GbE by Intel® I219 / 2 x GbE by Intel® I210		
	COM Port	4 x RS232/422/485 with AFC (DB9) 2 x RS232 (RJ-45)		
	Digital I/O	8-bit Digital I/O (4-in/ 4-out) (pin header)		
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)		
	Wireless	1 x 802.11a/b/g/n/ac (optional)		
	TPM	1 x TPM 2.0 (2 x 10 pin)(optional)		
	Other	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)		
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB 3.0/SATA)		
	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0)		1 x 2230 A-key (PCIe x 1)
	Backplane	-	1 x PCIe Gen3 x 4, 1 x USB 2.0	-
Power	Power Input	Terminal block: 12 ~ 24V DC (Reserved internal 40W power with 12V DC output)		
	Power Consumption	12V @ 4.98A (Intel® Core™ i5-8365UE with 8GB memory)		
Reliability	Mounting	DIN-Rail		
	Operating Temperature	-20°C ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing*		
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing		
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)		
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)		
	Weight (Net/ Gross)	2.9KG/ 3.2KG	3.2KG/ 3.5KG	2.9KG/ 3.2KG
	Safety/EMC	CE/ FCC		
	Watchdog Timer	Programmable 1 ~ 255 sec/min		
OS	Supported OS	Microsoft® Windows 10, Linux		

*CPU does not throttle under 60°C

FLEX-BX200AI



Intel
partner
Titanium

Model		FLEX-BX200AI Series
System	CPU	Intel® Xeon® E-2278GEL 2.0GHz (up to 3.9GHz, 8-core, TDP 35W) Intel® 9th Generation Core™ i7-9700TE 1.8GHz (up to 3.8GHz, 8-core, TDP 35W) Intel® 9th Generation Core™ i5-9500TE 2.2GHz (up to 3.6GHz, 6-core, TDP 35W) Intel® 8th Generation Core™ i5-8500 3.0GHz (up to 4.1GHz, 6-core, TDP 65W)
	Chipset	Intel® C240 Series Chipsets C246 (Coffee Lake) Intel® 300 Series Chipsets Q370 (Coffee Lake)
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supporting DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
	Ethernet	LAN1: Intel® I219LM with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller
Storage		4 x Accessible 2.5" SATA 6Gb/s HDD/SSD bay (with RAID 0/1/5/10 support, LED indicator, pre-installed 1TB HDD) 1 x NGFF M.2 (2280) M-Key socket (supports NVMe SSD)
Wireless Communication	WLAN	Intel® Wireless-AC 9260 802.11ac, 2.4/5GHz (by M.2 2230)
	Bluetooth	Bluetooth V5.1
	WWAN and GNSS	M.2 3042 LTE (optional)
I/O Ports and Switches		2 x HDMI output 2 x GbE LAN (1x I219 support vPro, 1x I210) 6 x USB 3.2 Gen1 Type-A 2 x RS-232 DB-9 1 x Mic in 1 x Line out
TPM		TPM 2.0
Expansion Slots		2 x PCIe 3.0 x8 1 x PCIe 3.0 x4 1 x M.2 B-Key 2242 socket (with SIM slot for 3G/LTE, supports PCIe 3.0 x1 & USB 3.2 Gen1) 1 x M.2 M-Key 2280 socket (supports PCIe 3.0 x4)
Thermal Solution		3 x System fan, 1 x CPU cooler
Power Supply		AC input ATX power supply - 350W power supply - Input: 90VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A
Watchdog Timer		Software programmable support 1~255 sec. system reset
Construction	Chassis Construction	Metal housing
	Mounting	Wall/Rack mount
	Color	Black
	Dimensions (LxDxH) (mm)	357 x 230 x 88
	Net Weight	4 kg
Environmental	Operating Temperature	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 60°C
	Operating Humidity	5% ~95%, non-condensing
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak
	Shock	10G acceleration part to part (11ms)
	Safety/EMC	CE/FCC/RoHS

FLEX-BX210-Q470/W480



Intel
partner
Titanium

Model		FLEX-BX210-Q470/W480
System	CPU	Intel® Xeon® W-1290TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W) Intel® 10th Generation Core™ i9-10900TE 1.8GHz (up to 4.5GHz, 10-core, TDP 35W) Intel® 10th Generation Core™ i5-10500TE 2.3GHz (up to 3.7GHz, 6-core, TDP 35W)
	Chipset	Intel® 400 Series Chipsets (Comet Lake)
	Memory	2 x 288-pin 2933/2666 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB Xeon W with 32GB RAM Pre-installed Core i9 with 16GB RAM Pre-installed Core i5 with 8GB RAM Pre-installed
	Graphics Engine	Intel® HD Graphics Gen 9.5 Engines with Low power 16 execution unit, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
	Ethernet	LAN1: Intel® I219LM with Intel® AMT 11.0 supported LAN2/LAN3: Intel® I210 PCIe controller
Storage		4 x accessible 2.5" HDD/SSD SATA 6 Gb/s bay (with RAID 0/1/5/10 support) with LED indicator 1 x NGFF M.2(2280) M Key socket (support NVMe SSD) Pre-installed 1 x 2.5" 1TB HDD
Wireless Communication	WLAN	Intel® AC 9260 802.11ac, 2.5/5GHz, 2T/2R (by M.2 2230)
	Bluetooth	Bluetooth V5.1
	WWAN and GNSS	M.2 3042 LTE (optional)
I/O Ports and Switches		1 x Display port output 1 x HDMI output 1 x Line out 1 x AC inlet 2 x RS-232 DB-9 1 x Mic in 4 x SMA 6 x USB 3.2 Gen1 Type-A 3 x GbE LAN (1x I219 support vPro, 2x I210) Power button with power LED (power on=Blue) AT/ATX mode switch Reset button
TPM		TPM 2.0 (pre-installed)
Expansion Slots		2 x PCIe 3.0 x8 2 x PCIe 3.0 x4 1 x M.2 B-Key 2242 socket (with SIM slot for 3G/LTE, supports PCIe 3.0 x1 & USB 3.2 Gen1) 1 x M.2 M-Key 2280 socket (supports PCIe 3.0 x4)
Thermal Solution		3 x System fan, 1 x CPU cooler
Power supply		AC input ATX power supply - 350W Power supply - Input: 90VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A
Watchdog Timer		Software programmable support 1~255 sec. system reset
Construction	Chassis Construction	Metal housing
	Mounting	Wall/Rack mount
	Color	Black
	Dimensions (LxDxH) (mm)	357 x 230 x 88
	Net Weight	4 kgs
Environmental	Operating Temperature	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 60°C
	Operating Humidity	5% ~95%, non-condensing
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak
	Shock	10G acceleration part to part (11ms)
	Safety/EMC	CE/FCC/RoHS

IDS-310AI



intel

Model		IDS-310AI
AI Accelerator Card	Model Name	Mustang-MPCI-E-MX2
	Main Chip	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
	Supported Topology	AlexNet, GoogleNetV1/V2, Mobile_SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101
Chassis	Color	Brown & Silver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 49.2
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® J3455 (up to 2.3GHz, quad-core, TDP 10W)
	Chipset	SoC
	System Memory	1 x 204-pin DDR3L SO-DIMM slot, pre-installed with 8 GB memory
Storage	SATADOM	Pre-installed 128GB
	Micro SD	1 x Micro SD Slot
I/O Interfaces	USB 3.2 Gen 1 (5Gb/s)	3
	Ethernet	2 x RJ-45 PCIe GbE by RTL8111 controller
	COM Port	1 x RS-232/422/485 with AFC
	Display	3 x HDMI 1.4b (3840x2160@30Hz)1, 2
	Audio	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	TPM	TPM2.0
	Others	1 x Power button, 1 x Reset button, 1 x AT/ATX switch, 1 x LED for HDD (yellow), 1 x LED for power (green)
Expansions	M.2	1 x 2230 A key (PCIe x1/ USB 2.0)
Power	Power Input	12V DC-in
	Power Consumption	12V @ 2.6A (Intel® Celeron® J3455 with 8GB memory)
Reliability	Mounting	Wall mount
	Operating Temperature	-20°C ~ 45°C with air flow, 10% ~ 95%, non-condensing
	Storage Temperature	-30°C ~ 80°C with air flow, 10% ~ 90%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis, IEC68-2-27
	Operation Vibration	MIL-STD-810G 514.6C-1
	Weight (Net/ Gross)	910 g/ 1.7 kg
	Safety / EMC	CE/FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Win10/Linux

¹ Due to chipset limitation, audio is not supported over the HDMI3 connector.

² Fully support of triple 4K display output may vary in different system environment setting. Contact an IEI sales representative for detailed information.

ITG-100AI



intel

Model		ITG-100AI
AI Accelerator Card	Model Name	Mustang-MPCI-E-MX2
	Main Chip	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
	Supported Topology	AlexNet, GoogleNetV1/V2, Mobile_SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101
Chassis	Color	Blue & Silver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 49.4
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)
	Chipset	SoC
	System Memory	1 x SO-DIMM DDR3L 1600/1867 (8GB pre-installed)
Storage	SATADOM	1 x 128GB pre-installed
	eMMC	1 x eMMC5.0 (up to 32GB)(optional)
	Micro SD	1 x Micro SD slot
I/O Interfaces	USB	2 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	2 x RS232/422/485 with AFC (DB9/RJ45)
	Display	1 x VGA (up to 1920 x 1080@60Hz)
	Wireless	1 x 802.11a/b/g/n/ac (optional)
	Other	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)
Expansions	M.2	1 x 2230 A-key (PCIe x1/USB 2.0)
Power	Power Input	Terminal block: 9 ~ 36V DC
	Power Consumption	12V @ 1.2A (Intel® Atom™ E3930 with 8GB memory)
Reliability	Mounting	DIN-Rail
	Operating Temperature	-20°C ~ 50°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-20°C ~ 70°C with air flow, 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operation Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	895g/ 1.7kg
	Safety/EMC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux Ubuntu 16.04 LTS

» PAC-400AI-C236



intel

Model		PAC-400AI-C236
Chassis	Color	NAVY BLUE & BLACK
	Dimensions (WxDxH)	268.7mm x 140mm x 230.3mm
	System Fan	System Fan & CPU Fan
	Chassis Construction	Heavy duty metal
Motherboard	CPU	Intel® Xeon® E3-1275 v5 CPU (3.60 GHz, Quad Core, TDP 80W)
	Chipset	Intel® C236
	System Memory	Two 260-pin 1600/2133 MHz dual-channel DDR4 ECC and non-ECC unbuffered SODIMMs support up to 32 GB (2 x 8GB Pre-installed)
	Display Output	1 x VGA (up to 1920x1200@60 Hz) 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)
Storage	Hard Drive	1x 3.5" 6 Gb/s SATA removable drive Bay (Hot swap)
	MSATA	1
I/O interfaces	Ethernet	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 support LAN2: Intel® I211 PCIe controller
	KB/MS	1 x (1x6 pin)
	USB 3.2	2 x USB 3.2 Gen1
	USB 2.0	2 x USB 2.0
	Expansion	1 x PCIe Gen3 x16 slot 1 x PCIe Gen3 x4 slot **PCIe Half Size Cards length support to maximum 169mm
Power	Power Input	ATX Power (350W)
	PCIe Expansion Card (GPU/ Add-on Cards) Recommendation	Total maximum up to 150W (80W CPU with 16GB memory, 350W ATX Power) Total maximum up to 180W (35W CPU with 16GB memory, 350W ATX Power)
Reliability	Mounting	Wall mount
	Operating Temperature	0°C~+50°C
	Storage Temperature	0°C~+60°C
	Relative Humidity	10% ~ 95%, non-condensing
	Weight (Net/Gross)	6 kg/7.8 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows® 10, Linux

» RACK-500AI-C246



intel

Model		RACK-500AI-C246
Chassis	Color	Navy blue and black
	Dimensions (WxDxH)	440.2 mm x 110.6 mm x 221.3 mm
	System Fan	System Fan & CPU Fan
	Chassis Construction	Heavy duty metal
Motherboard	CPU	Intel® Xeon® E-2176G CPU (3.70 GHz, Hexa Core, TDP 80W)
	Chipset	Intel® C246
	System Memory	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC (2 x 8G Pre-installed)
	Display Output	Dual display supported 1 x HDMI (up to 4096 x 2304@30Hz) 1 x Internal DisplayPort (up to 4096 x 2304@60Hz)
Storage	Hard Drive	1x 3.5" 6 Gb/s SATA removable drive Bay (Hot swap)
	M.2	1 x 2280 M key (PCIe x4)
I/O interfaces	Ethernet	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)
	USB 3.2	2 x Internal USB 3.2 Gen1 (2x10 pin)
	USB 2.0	6 (pin header)
	RS-232	3 (pin header)
	RS-422/485	1 (1x4 pin, P=2.0)
	Expansion	1 x PCIe Gen3 x16 slot 1 x PCIe Gen3 x4 slot **If use 2 slots capacity PCIe add-on Cards (maximum length 338mm) need to change cooler (P/N: 19100-000238-00-RS)
Power	Power Input	ATX Power (350W)
	PCIe Expansion Card (GPU/ Add-on Cards) Recommendation	Total maximum up to 150W (80W CPU with 16GB memory, 350W ATX Power) Total maximum up to 180W (35W CPU with 16GB memory, 350W ATX Power)
Reliability	Mounting	Rack mount
	Operating Temperature	-20°C~+50°C
	Storage Temperature	-30°C~+60°C
	Relative Humidity	10% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6C-1
	Weight (Net/Gross)	8 kg/11 kg
	Safety/EMC	CE/FCC
OS	Supported OS	Microsoft® Windows® 10, Linux

» Mustang-F100-A10



Model	Mustang-F100-A10
Main FPGA	Intel® Arria® 10 GX1150 FPGA
Operating Systems	Ubuntu 16.04.3 LTS 64-bit, CentOS 7.4 64-bit Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, (Windows® 10 64bit & more OS are coming soon)
Voltage Regulator and Power Supply	Intel® Enpirion® Power Solutions
Memory	8G on board DDR4
Dataplane Interface	PCI Express x8
	Compliant with PCI Express Specification V3.0
Power Consumption	Approximate 40W
Operating Temperature	5°C~60°C
Cooling	Active fan
Dimensions	Standard Half-Height, Half-Length, Double-slot
Operating Humidity	5% ~ 90%
Power Connector	*Preserved PCIe 6-pin 12V external power
Dip Switch/LED indicator	Identify card number
Support Topology	AlexNet; DenseNet-121, -161, -169, -201; GoogLeNet v1, v2, v3, v4; Inception v1, v2, v3, v4; LSTM: CTPN MobileNet v1, v2; MobileNet SSD; MTCNN-o, -p, -r; ResNet-18, -50, -101, -152; ResNet v2-50, -101, -152 Sphreface; SqueezeNet v1.0, v1.1; SSD MobileNet v1, v2; SSD Inception v2, v3; SSD ResNet; SSD300 SSD512; U-Net; VGG16, VGG19; YoloTiny v1, v2, v3; Yolo v2, v3 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

*TANK AIoT dev. kit PCIe slot provides 75W power, this feature is preserved for user in case of different system configuration.

Warning: DO NOT install the Mustang-F100-A10 into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the Mustang-F100-A10 from being damaged.

» Mustang-V100-MX8



Model	Mustang-V100-MX8
Main Chip	Eight Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	PCI Express x4
	Compliant with PCI Express Specification V2.0
Power Consumption	Approximate 25W
Operating Temperature	-20°C~60°C
Cooling	Active fan
Dimensions Standard	Half-Height, Half-Length, Single-slot PCIe
Operating Humidity	5% ~ 90%
Power Connector	*Preserved PCIe 6-pin 12V external power
Dip Switch/LED indicator	Identify card number
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

*TANK AIoT dev. kit PCIe slot provides 75W power, this feature is preserved for user in case of different system configuration.

Warning: DO NOT install the Mustang-V100-MX8 into the TANK AIoT Dev. Kit before shipment. It is recommended to ship them with their original boxes to prevent the Mustang-V100-MX8 from being damaged.

» Mustang-V100-MX4



Model	Mustang-V100-MX4
Main Chip	4 x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	PCIe Gen 2 x 2
Power Consumption	Approximate 15W
Operating Temperature	-20°C~60°C
Cooling	Active fan
Dimensions	113 x 56 x 23 mm
Operating Humidity	5% ~ 90%
Dip Switch/LED indicator	Identify card number
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html

» Mustang-T100-T5



Model	Mustang-T100-T5
Main Chip	Five Google Coral Edge TPU Accelerator Module
Operating Systems	Linux: 64-bit version of Debian 10 or Ubuntu 16.04 (or newer), and an x86-64 or ARMv8 system architecture Windows: 64-bit version of Windows 10, and x86-64 system architecture
Dataplane Interface	PCI Express Gen2x4
Power Consumption	Approximate 15W
Operating Temperature	-20°C~60°C
Cooling Solution	Active/Passive
Dimensions	Standard half-height, half-length, single-slot PCIe card
Dip Switch/LED indicator	Identify card number
Support Framework	Tensorflow Lite
Precision	INT8
INT8 Performance	Up to 20 TOPS, each TPU module up to 4 TOPS.
	Five TPU modules can provide 20 TOPS.
	Please refer to Google Coral official website for more information.
	https://coral.ai/docs/module/datasheet/
Supported Topology	Image classification, Object detection, Image segmentation
	Please refer to Google Coral official website for more information.
	https://coral.ai/models/

Mustang Series



Model	Mustang-M2BM-MX2	Mustang-M2AE-MX1	Mustang-MPCIE-MX2
Main Chip	2x Intel® Movidius™ Myriad™ X MA2485 VPU	1 x Intel® Movidius™ Myriad™ X MA2485 VPU	2 x Intel® Movidius™ Myriad™ X MA2485 VPU
Operating Systems	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit	Ubuntu 18.04.x 16.04.x LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit	Ubuntu 16.04.3 LTS 64bit, CentOS 7.4 64bit, Windows® 10 64bit
Dataplane Interface	M.2 BM Key	M.2 AE Key	miniPCle
Power Consumption	Approximate 7W	Approximate 4.5W	Approximate 7.5W
Operating Temperature	-20°C ~ 60°C (Tested in IEI FLEX-BX200)	-20°C to 60°C	-20°C~60°C
Cooling	Active Heatsink	Active Heatsink	Active Heatsink
Dimensions	22 x 80 mm	22 x 30 mm	30 x 50 mm
Operating Humidity	5% ~ 90%	5% ~ 90%	5% ~ 90%
Support Topology	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website. [Supported Models] https://docs.openvinotoolkit.org/latest/_docs_IE_DG_Introduction.html#SupportedFW [Supported Framework Layers] https://docs.openvinotoolkit.org/latest/_docs_MO_DG_prepare_model_Supported_Frameworks_Layers.html	AlexNet, GoogleNetV1/V2, MobileNet SSD, MobileNetV1/V2, MTCNN, Squeezenet1.0/1.1, Tiny Yolo V1 & V2, Yolo V2, ResNet-18/50/101 * For more topologies support information please refer to Intel® OpenVINO™ Toolkit official website.

» Mustang-V200-KB3



Model	Mustang-V200-KB3
Main Chip	3 x Intel® Movidius™ Keem Bay™
Embedded CPU	3 x 4 cores ARM A53 1.5GHz
Memory	6 x 2GB LPDDR4
Storage	3 x 16GB eMMC
TPM data protection	Yes
Dimension	Standard Half-Height, Half-length, Double slot
Interface	PCIe Gen3 x 4
Operating Temperature	-20°C ~ 60°C
Power Consumption	Estimated 55W
Cooling	Active (single slot with Fan) / Passive (single slot)
External Power	Preserved power connector
Computation Capability	Up to 15 TOPS (5.1TOPS per 3400 VE)
	Up to 21 TOPS (7.1TOPS per 3700 VE)

» Mustang-M2BM-KB1



Model	Mustang-M2BM-KB1
Main Chip	1 x Intel® Movidius™ Keem Bay™
Embedded CPU	4 cores ARM A53 1.5GHz
Memory	2 x 2GB LPDDR4
Storage	16GB eMMC
TPM data protection	Yes
Dimension	Standard Half-Height, Half-length, Double slot
Interface	PCIe Gen3 x 2
Operating Temperature	-20 ~ 60 degree C
Power Consumption	Estimated 15W
Cooling	Active(single slot with Fan) / Passive(single slot)
External Power	Preserved power connector
Computation Capability	Up to 5 .1TOPS per 3400 VE
	Up to 7 .1TOPS per 3700 VE

» TANK-500AI-XA



Model		TANK-500AI-XA
Chassis	Color	Black C + Silver
	Dimensions (WxDxH) (mm)	240 x 206.6 x 87
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	8-core ARM v8.2 64-bit CPU, 8MB L2 + 4MB L3
	GPU	NVIDIA Volta™ architecture with 512 NVIDIA CUDA cores and 64 Tensor cores 11 TFLOPS (FP16) 22 TOPS (INT8)
	System Memory	32 GB 256-bit LPDDR4x 2133MHz - 137GB/s
Storage	eMMC	1 x 32GB eMMC 5.1
	Micro SD Card	1 x Micro SD slot
I/O Interfaces	USB	4 x USB 3.2 Gen1 1 x USB 2.0 Type C OTG mode (internal for programming internal flash) 1 x USB 2.0 Type A (internal)
	Ethernet	2 x RJ-45: 2 x GbE by Marvell 88E1512
	COM Port	1 x RS232/422/485 with AFC
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x HDMI (up to 3840 x 2160 @ 60HZ) 1 x DP (up to 3840 x 2160 @ 60HZ)
	Audio	1 x 2W speaker
	TPM	1 x TPM 2.0
Expansions	M.2	1 x 2230 M.2 E-key (PCIe x1/USB 2.0) 1 x 2242/60/80 M-key (PCIe x4) 1 x 2280 M.2 M-key (PCIe x2 for IEI module only)
Power	Power Input	DC Jack: 19V DC
Reliability	Mounting	Wall mount
	Operating Temperature	MAX: -20~ 50° with air flow, 10% ~ 95% non-condensing 30W: -20~ 60°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-30~70°C with air flow, 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operation Vibration	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	TBD
	Safety/EMC	CE/FCC
	OS	Supported OS
		Linux for Jetson AGX Xavier

» TANK-510AI-NX



Model		TANK-510AI-NX
Chassis	Color	Black C + Silver
	Dimensions (WxDxH)(mm)	156 x 148 x 73.9
	System Fan	Fanless
	Chassis Construction	Extruded aluminum alloys
Motherboard	CPU	6-core NVIDIA Carmel ARM® v8.2 64-bit CPU 6MB L2 + 4MB L3
	GPU	384-core NVIDIA Volta™ GPU with 48 Tensor Cores
	System Memory	8 GB 128-bit LPDDR4x
Storage	eMMC	1 x 16GB eMMC 5.1
	Micro SD Card	1 x Micro SD Slot
I/O Interfaces	USB	4 x USB 3.2 Gen1 1 x USB 2.0 (Micro USB)
	Ethernet	5 x RJ-45: 1 x GbE by NX module 4 x GbE by Intel® I211 (IEEE 802.3af PoE)
	COM Port	1 x RS232/422/485 with AFC
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x HDMI
	Can Bus	1 (DB9)
	TPM	1 x TPM 2.0
Expansions	M.2	1 x 2242/80 B-key (SATA/USB 2.0)
Power	Power Input	DC Jack: 12~24V DC
Reliability	Mounting	Wall mount
	Operating Temperature	-20 ~ 60°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-30 ~ 70°C with air flow, 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operation Vibration	MIL-STD-810G 514.6 C-1 (with SSD)
	Weight (Net/Gross)	TBD
	Safety / EMC	CE / FCC
	Watchdog timer	Programmable 1~255 sec/min
OS	Supported OS	Linux for Jetson NX

HTB-300-XA



Model		HTB-300-XA
Chassis	Color	White
	Dimension (LxWxH)	293 x 209 x 82 mm
	Thermal	Fanless
	Chassis Construction	Metal housing (SECC)
Motherboard	CPU	8-core ARM v8.2 64-bit CPU, 8MB L2 + 4MB L3
	GPU	NVIDIA Volta™ architecture with 512 NVIDIA CUDA cores and 64 Tensor cores; 11 TFLOPS (FP16) 22 TOPS (INT8)
	System Memory	32GB eMMC 5.1 Support NVMe SSD by M.2 interface 1 x SD card slot for data encryption
I/O Interfaces	USB	1 x USB 2.0 Type C (internal) UART debug port 1 x USB 2.0 Type A (internal) for storing encrypted AI model and programming internal flash 4 x USB 3.2 Gen1
	COM port	1 x RS-232/422/485
	Display	1 x HDMI (max. 3840 x 2160 @ 60Hz) 1 x DP port (max. 3840 x 2160 @ 60Hz)
	Audio	1 x 3W speaker
	Others	1 x Power Button (RGB color LED)
Expansions	PCIe	1 x PCIe 3.0 x8 slot
	PCIe Mini	1 x M.2 M key 2242/60/80 for SSD 1 x M.2 E key for Wi-Fi & Bluetooth
	M.2	1 x Modularized high speed ground plane header (SSD/ SDI input/ HDMI input)
	Security	TPM 2.0
Power	Power Input	100~240 VAC
	Adapter	65W medical adapter
Reliability	Operating Temperature	0~40 °C
	Operating Humidity	10%~95% (non-condensing)
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6C-1 (with SSD)
	Weight (Net / Gross)	3.05 kg
Certification	Safety / EMC	IEC 60601-1-2: 2014 (Edition 4.0) IEC 60601-1:2005+AMD1:2012 (Edition 3.1)
OS	Supported OS	Linux for Jetson AGX Xavier
	File System	Ubuntu 18.04, Kernel version: 4.9

» GRAND-C422-20D-S

S - Software RAID
H - Hardware RAID



Model		GRAND-C422-20D-S
Chassis	Dimensions (H x W x D)	176.15 x 480.94 x 644 mm
	System Fan	2 x 120 mm, 12V DC
	Chassis Construction	4U, Rackmount
Motherboard	CPU	Intel® LGA-2066 Xeon® W Family processor
	Processor Cooling	Water cooling system
	Chipset	C422
	Memory	Total slot: 4 x DDR4 ECC RDIMM / LRDIMM Memory expandable up to:256GB (4 x 64GB)
Security	TPM	1 x TPM 2.0 Pin header
IPMI	IPMI Solution	IPMI LAN port, IPMI VGA display
Storage	Hard Drive	12 x 2.5" / 3.5" drive bay 8 x 2.5" drive bay
	M.2	1 x 2280 M key (PCIe x4) built in on SBC
	U.2	2 x U.2 SSD drive bay compatible to SATA
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 10 GbE NIC: Aquantia AQC107
I/O Interface	USB 3.2 Gen 1	4
	USB 2.0	2
	Ethernet	1 x 1GbE RJ-45 combo LAN ports / IPMI 1 x 10GbE RJ-45 LAN port
	Display	1 x IPMI VGA display
	Buttons	Power button
Internal I/O	COM port	2 x RS-232 pin header
	USB 3.2 Gen 1	2 x USB 3.2 Gen 1 (5Gb/s) pin header
	USB 2.0	2 x USB 2.0 pin header, 1 x USB 2.0 type A
Indicator	LEDs	10 GbE, Status, LAN, Storage Expansion Port Status
	LCM	LCM, 2 buttons
Expansion	PCIe	4 x PCIe Gen 3 x8 2 x PCIe Gen 3 x4
Power	Power Input	100-240V AC, 47-63Hz
	Power Consumption	In Operation: 285W
	Type/Watt	Redundant Power 1200W
Reliability	Operating Temperature	0~40°C
	Relative Humidity	5 to 95% non-condensing, wet bulb: 27°C
	Weight	23.59 kg
	Certification	CE/FCC
OS	Support OS	Windows server 2016 Linux

» GRAND-C422-20D-H

S - Software RAID
H - Hardware RAID



Model		GRAND-C422-20D-H1	GRAND-C422-20D-H2
Chassis	Dimensions (H x W x D)	176.15 x 480.94 x 644 mm	
	System Fan	2 x 120 mm, 12V DC	
	Chassis Construction	4U, Rackmount	
Motherboard	CPU	Intel® LGA-2066 Xeon® W Family processor	
	Processor Cooling	Water cooling system	
	Chipset	C422	
	Memory	Total slot: 4 x DDR4 ECC RDIMM / LRDIMM Memory expandable up to:256GB (4 x 64GB)	
Security	TPM	1 x TPM 2.0 Pin header	
IPMI	IPMI Solution	IPMI LAN port, IPMI VGA display	
Storage	Hard Drive (need to install RAID card)	12 x 2.5" / 3.5" drive bay (support SAS /SATA) 8 x 2.5" drive bay (support SAS /SATA)	
	M.2	1 x M.2 (PCIe Gen 3 x4) built in on SBC	
	U.2	2 x U.2 SSD drive bay compatible to SATA	
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 10 GbE NIC: Aquantia AQC107	
I/O Interface	USB 3.2 Gen 1	4	
	USB 2.0	2	
	Ethernet	1 x 1GbE RJ-45 combo LAN ports / IPMI 1 x 10GbE RJ-45 LAN port	
	Display	1 x IPMI VGA display	
	Buttons	Power button	
Internal I/O	COM port	2 x RS-232 pin header	
	USB 3.2 Gen 1	2 x USB 3.2 Gen 1 (5Gb/s) pin header	
	USB 2.0	2 x USB 2.0 pin header, 1 x USB 2.0 type A	
Indicator	LEDs	10 GbE, Status, LAN, Storage Expansion Port Status	
	LCM	LCM, 2 buttons	
Expansion	PCIe	2 PCIe Gen 3 x16 1 PCIe Gen 3 x8 3 PCIe Gen 3 x4	5 PCIe Gen 3 x8 2 PCIe Gen 3 x4
Power	Power Input	100-240V AC, 47-63Hz	
	Power Consumption	In Operation: 285W	
	Type/Watt	Redundant Power 1200W	
Reliability	Operating Temperature	0~40°C	
	Relative Humidity	5 to 95% non-condensing, wet bulb: 27°C	
	Weight	23.59 kg	
	Certification	CE/FCC	
OS	Support OS	Windows server 2016 / Linux	

PUZZLE Series



Model		PUZZLE-IN005	PUZZLE-IN001	
			PUZZLE-IN001-XE	PUZZLE-IN001-i3T
Platform	Form Factor	2U	1U	
	CPU	Intel® Ice-Lake LGA-4189 Xeon® Scalable Processor	Intel® Xeon® E-2136 processor, 6C/12T, up to 4.50 GHz	8th Generation Intel® Core™ i3-8100T processor, 4C/4T, up to 3.10 GHz
	Chipset	Intel® C627A	Intel® C246	
Memory	Memory Technology	DDR4 3200MHz ECC RDIMM / LRDIMM	2 x DDR4 2400MHz ECC/Non-ECC UDIMM	
	Memory Capacity	Up to 1280GB (20 x 64GB)	Up to 32GB	
	Memory Socket	20 x 288-pin DIMM	2 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	- Intel® AES New Instructions - Intel® QuickAssist Technology (Intel® QAT) - Intel® Virtualization Technology (Intel® VT) - Intel® Trusted Execution Technology (Intel® TXT)	- Intel® AES New Instructions - Intel® Software Guard Extensions (Intel® SGX) - Intel® Memory Protection Extensions (Intel® MPX) - Intel® Trusted Execution Technology	
	TPM	1 x TPM 2.0 Pin header	1 x TPM 2.0 Pin header	
IPMI	IPMI solution	1 x iRIS-2400 module	N/A	
Networking	Ethernet IC	1 GbE NIC: Intel® i210-AT with NCSI support 1 GbE NIC: Intel® i219	1 GbE NIC: Intel® i211-AT	
	Ethernet Port	2 x 1GbE RJ45 ports (1 x IPMI Lan)	8 x 1GbE RJ45 LAN ports	
	Bypass	N/A	N/A	
	Network Module Slot	8 x Networking Module Slot	2 x PuIM module slots	
Expansion Slot	PCIe Slot	1 x PCIe Gen4 x8 (FHHL) slot (single width)	1 x PCIe 3.0 x8 (FHHL) slot, 1 x PCIe 3.0 x4 (FHHL) slots	
	PCIe Mini Card Slot	N/A	1 x PCIe Mini card (PCIe 3.0 & SATA 3.0, USB 2.0)	
	M.2	2 x M.2 M key 2280 Support PCIe Gen3 x4 nVMe	1 x 3042/2260 M.2 B key (SATA 3.0 / USB 3.2 Gen1) Support SATA SSD and 4G LTE module	
Storage	Storage	4 x U.2 SSD drive bay compatible to SATA	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	eMMC	N/A	N/A	
	SD Card	N/A	N/A	
External I/O	VGA	1 x VGA port	N/A	
	USB	2 x USB 3.1 Gen 1 (5Gb/s) Type-A ports	2 x USB 3.2 Gen 1	
	Console	1 x RJ45 1 x USB Type-C	1 x RJ45	
Internal I/O	HDMI	N/A	1 x HDMI connector (optional)	
	USB	1 x USB 2.0 pin header	4 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power Switch	1 x Power Switch	
	Reset Button	1 x Reset Button	1 x Reset Button	
	Power Input	100 V ~ 240 V	100 V ~ 240 V	
	Type/Watt	Redundant Power 1200W, 90V~264V AC	Redundant Power 300W, 90V~264V AC	
	Processor Cooling	2 x Active CPU Cooler	1 x Passive CPU Heatsink	
	System Cooling	5 x Cooling Fans with Smart Fan	4 x Cooling Fans with Smart Fan	
	Antenna Hole	N/A	1 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C~75°C (-4°F~167°F)	-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5%~90% non-condensing	Relative humidity: 5%~90% non-condensing	
	Dimensions (W x L x H) (mm)	438 x 650 x 88 mm	430 x 426 x 44.2	
	Weight	23 KG	7 KG	
OS and Certifications	Certification	CE / FCC / RoHS	CE / FCC/ RoHS	
	Operating System	Linux 18.04 (CentOS, Red Hat, Ubuntu, etc.) Windows server 2019	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	N/A	LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	

PUZZLE Series



Model		PUZZLE-IN001A		PUZZLE-IN002	
		PUZZLE-IN001A-XE	PUZZLE-IN001A-i3T	PUZZLE-IN002-i3T	PUZZLE-IN002-PGT
Platform	Form Factor	1U		1U	
	CPU	Intel® Xeon® E-2136 processor, 6C/12T, up to 4.50 GHz	8th Generation Intel® Core™ i3-8100T processor, 4C/4T, up to 3.10 GHz	8th Generation Intel® Core™ i3-8100T processor, 4C/4T, up to 3.10 GHz	Intel® Pentium® Gold G5400T processor, 2C/4T, up to 3.10 GHz
	Chipset	Intel® C246		Intel® H310	
Memory	Memory Technology	4 x DDR4 2400MHz ECC/Non-ECC UDIMM		DDR4 2400MHz Non-ECC UDIMM	
	Memory Capacity	Up to 64GB		Up to 32GB	
	Memory Socket	4 x 288-pin DIMM		2 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology		• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Trusted Execution Technology	
	TPM	1 x TPM 2.0 Pin header		1 x TPM 2.0 pin header	
IPMI	IPMI solution	N/A		N/A	
Networking	Ethernet IC	5GbE NIC: AQC 111C		1 GbE NIC: Intel® i211-AT	
	Ethernet Port	8 x 5GbE RJ45 LAN ports		6 x 1GbE RJ45 LAN ports	
	Bypass	N/A		N/A	
	Network Module Slot	2 x PuIM module slots		N/A	
Expansion Slot	PCIe Slot	1 x PCIe 3.0 x8 (FHHL) slot 1 x PCIe 3.0 x4 (FHHL) slots		1 x PCIe 3.0 x16 (FHHL) slot (double width)	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0 & SATA 3.0, USB 2.0)		1 x PCIe Mini card (SATA 3.0, USB 2.0) with SIM slot	
	M.2	1 x 3042/2260 M.2 B key (SATA 3.0 / USB 3.2 Gen1) Support SATA SSD and 4G LTE module		1 x M.2 A key (PCIe 2.0 & USB 2.0)	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)		2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	eMMC	N/A		N/A	
	SD Card	N/A		N/A	
External I/O	VGA	N/A		N/A	
	USB	2 x USB 3.2 Gen 1		2 x USB 3.2 Gen 1	
	Console	1 x RJ45		1 x RJ45	
Internal I/O	HDMI	1 x HDMI connector (optional)		1 x HDMI connector (optional)	
	USB	4 x USB 2.0 (pin header)		2 x USB 2.0 (pin header)	
Power and Mechanical	Power Switch	1 x Power Switch		1 x Power Switch	
	Reset Button	1 x Reset Button		1 x Reset Button	
	Power Input	100 V ~ 240 V		100 V ~ 240 V	
	Type/Watt	Redundant Power 300W, 90V~264V AC		ATX Power 250W, 90V~264V AC	
	Processor Cooling	1 x Passive CPU Heatsink		1 x Passive CPU heatsink	
	System Cooling	4 x Cooling Fans with Smart Fan		4 x Cooling Fans with Smart Fan	
	Antenna Hole	1 x Antenna hole		1 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)		-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)		0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5%~90% non-condensing		Relative humidity: 5%~90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2		430 x 320 x 44.2	
	Weight	7 KG		5 KG	
OS and Certifications	Certification	CE / FCC/ RoHS		CE / FCC/ RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10		Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
Indicators	LCM	LCM, 2 buttons		LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED		1 x Power LED, 1 x Storage LED, 1 x Alert LED	

PUZZLE Series



Model		PUZZLE-IN003A		PUZZLE-IN003B	
		PUZZLE-IN003A-C1	PUZZLE-IN003A-C3	PUZZLE-IN003B-C0	PUZZLE-IN003B-C1
Platform	Form Factor	Desktop		Desktop	
	CPU	Intel® Atom® processor C3558 8M cache, up to 2.20 GHz	Intel® Atom® Processor C3336 4M Cache, 1.50 GHz	Intel® Atom® processor C3758 16M cache, up to 2.20 GHz	Intel® Atom® processor C3558 8M cache, up to 2.20 GHz
	Chipset	Integrated in CPU		Integrated in CPU	
Memory	Memory Technology	DDR4 2133MHz ECC (By CPU) or non-ECC UDIMM, Support DDR4 RDIMM		DDR4 2133MHz ECC (By CPU) or non-ECC UDIMM, Support DDR4 RDIMM	
	Memory Capacity	UDIMM up to 64GB RDIMM up to 128GB		UDIMM up to 64GB RDIMM up to 128GB	
	Memory Socket	2 x 288-pin DIMM	1 x 288-pin DIMM	4 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® QuickAssist Technology (Intel® QAT)	• Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® Virtualization Technology (VT-x) • Intel® QuickAssist Technology (Intel® QAT)	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Memory Protection Extensions (Intel® MPX) • Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® QuickAssist Technology (Intel® QAT)	• Intel® AES New Instructions • Intel® Software Guard Extensions (Intel® SGX) • Intel® Virtualization Technology for Directed I/O (VT-d) • Intel® QuickAssist Technology (Intel® QAT)
	TPM	1 x TPM 2.0 pin header		1 x TPM 2.0 pin header	
	IPMI	N/A		N/A	
Networking	IPMI solution	N/A		N/A	
	Ethernet IC	1 GbE NIC: Intel® i211-AT 1 GbE PHY: Marvell 88E1543		1 GbE NIC: Intel® i211-AT 1 GbE PHY: Marvell 88E1512 10 GbE: Intel® X553 integrated in CPU	
	Ethernet Port	4 x GbE from Intel® i211-AT 4 x GbE from Marvell 88E1543	4 x GbE from Intel® i211-AT 2 x GbE from Marvell 88E1543	4 x 1GbE from Intel® i211-AT 2 x 1GbE from Marvell 88E1512 2 x 10 GbE SFP+	
	Bypass	Yes, 2 bypass segments	Yes, 1 bypass segments	N/A	
Expansion Slot	Network Module Slot	N/A		N/A	
	PCIe Slot	N/A		N/A	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0, USB 2.0) with SIM slot		1 x PCIe Mini card (PCIe 3.0, USB 2.0) with SIM slot	
Storage	M.2	1 x M.2 A key (PCIe 3.0 & USB 2.0)		1 x M.2 A key (PCIe 3.0 & USB 2.0)	
	Storage	1 x SATA 3.0 + 1 x 5V power connector (for SATA DOM) 1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME		1 x SATA 3.0 + 1 x 5V power connector (for SATA DOM) 1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME	
	eMMC	1 x eMMC 32GB		1 x eMMC 32GB	
External I/O	SD Card	N/A		N/A	
	VGA	N/A		N/A	
	USB	1 x USB 2.0 1 x USB 3.2 Gen 1		1 x USB 2.0 1 x USB 3.2 Gen 1	
Internal I/O	Console	1 x RJ45		1 x RJ45	
	HDMI	N/A		N/A	
	USB	N/A		N/A	
Power and Mechanical	Power Switch	1 x Power Switch		1 x Power Switch	
	Reset Button	1 x Reset Button		1 x Reset Button	
	Power Input	1 x DC jack		1 x DC jack	
	Type/Watt	12 V DC-in, 60W		12 V DC-in, 60W	
	Processor Cooling	Passive CPU heatsink		Passive CPU heatsink	
	System Cooling	Fanless		Two system fans Fanless	
Physical and Environmental	Antenna Hole	2 x Antenna hole		2 x Antenna hole	
	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)		-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)		0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5%~90% non-condensing		Relative humidity: 5%~90% non-condensing	
	Dimensions (W x L x H) (mm)	225 x 206 x 44.2		225 x 206 x 44.2	
	Weight	2 KG		2 KG	
OS and Certifications	Certification	CE / FCC/ RoHS		CE / FCC/ RoHS	
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10		Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10	
	LCM	N/A		N/A	
Indicators	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED		1 x Power LED, 1 x Storage LED, 1 x Alert LED	

PUZZLE Series



Model		PUZZLE-IN004				
		PUZZLE-IN004-XD1	PUZZLE-IN004-XD2	PUZZLE-IN004-XD3	PUZZLE-IN004-XD4	PUZZLE-IN004-XD5
Platform	Form Factor	1U				
	CPU	Intel® Xeon® D-2145NT processor 8-core, 11M cache 1.90 GHz	Intel® Xeon® D-2146NT processor 8-core, 11M cache, 2.30 GHz	Intel® Xeon® D-2166NT processor 12-core, 16.5M Cache, 2.00 GHz	Intel® Xeon® D-2177NT Processor 14-core, 19.25M Cache, 1.90 GHz	Intel® Xeon® D-2187NT processor 16-core, 22M cache, 2.00 GHz
	Chipset	Integrated in CPU				
Memory	Memory Technology	DDR4 2133/2400MHz ECC DDR4 RDIMM/LRDIMM				
	Memory Capacity	RDIMM up to 256 GB LRDIMM up to 512 GB				
	Memory Socket	8 x 288-pin DIMM				
Network and Security	Network Acceleration and Security Function	• Intel® AES New Instructions • Intel® QuickAssist Technology (Intel® QAT) • Intel® Virtualization Technology (Intel® VT) • Intel® Trusted Execution Technology (Intel® TXT)				
	TPM	1 x TPM 2.0 pin header				
IPMI	IPMI solution	N/A				
Networking	Ethernet IC	1 GbE NIC: Intel® i211-AT 10 GbE: Intel® X722 integrated in CPU				
	Ethernet Port	8 x 1GbE RJ45 LAN ports 4 x 10 GbE SFP+				
	Bypass	N/A				
	Network Module Slot	1 x PuLM module slot				
Expansion Slot	PCIe Slot	1 x PCIe 3.0 x8 (FHHL) slot (double width)				
	PCIe Mini Card Slot	1 x PCIe Mini (PCIe +USB 2.0) with SIM card				
	M.2	1 x M.2 M key 2260/2280 Support PCIe 3.0 x4 nVME				
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)				
	eMMC	N/A				
	SD Card	N/A				
External I/O	VGA	N/A				
	USB	1 x USB 2.0 1 x USB 3.2 Gen 1				
	Console	1 x RJ45				
Internal I/O	HDMI	N/A				
	USB	N/A				
Power and Mechanical	Power Switch	1 x Power Switch				
	Reset Button	1 x Reset Button				
	Power Input	100 V ~ 240 V				
	Type/Watt	Redundant Power 300W, 90V~264V AC				
	Processor Cooling	1 x Passive CPU Heatsink				
	System Cooling	4 x Cooling Fans with Smart fan				
	Antenna Hole	1 x Antenna hole				
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)				
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)				
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing				
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2				
	Weight	7 KG				
OS and Certifications	Certification	CE / FCC/ RoHS				
	Operating System	Linux Ubuntu 18.04.04 CentOS 7 / Red Hat / Fedora EPEL Microsoft Windows 10				
Indicators	LCM	LCM, 2 buttons				
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED				

PUZZLE Series



Model		PUZZLE-A001		PUZZLE-A001A-SO2	
		PUZZLE-A001-SO2	PUZZLE-A001-SO3	PUZZLE-A001A-SO2	PUZZLE-A001A-SO3
Platform	Form Factor	1U	1U	1U	1U
	CPU	AMD EPYC™ Embedded 3201 processor, 8C/8T, up to 3.10 GHz	AMD EPYC™ Embedded 3151 processor, 4C/8T, up to 2.90 GHz	AMD EPYC™ Embedded 3201 processor, 8C/8T, up to 3.10 GHz	AMD EPYC™ Embedded 3151 processor, 4C/8T, up to 2.90 GHz
	Chipset	Integrated in CPU		Integrated in CPU	
Memory	Memory Technology	DDR4 2133/2666 MHz ECC or non-ECC UDIMM/ DIMM		DDR4 2133/2666 MHz ECC or non-ECC UDIMM/ DIMM	
	Memory Capacity	UDIMM Up to 64GB RDIMM Up to 128GB		UDIMM Up to 64GB RDIMM Up to 128GB	
	Memory Socket	4 x 288-pin DIMM		4 x 288-pin DIMM	
Network and Security	Network Acceleration and Security Function	- Secure Processor for Crypto Co-processing - Secure Memory Encryption (SME) - Secure Encrypted Virtualization (SEV) - Integrated crypto acceleration supporting the IPsec protocol		- Secure Processor for Crypto Co-processing - Secure Memory Encryption (SME) - Secure Encrypted Virtualization (SEV) - Integrated crypto acceleration supporting the IPsec protocol	
	TPM	1 x TPM 2.0 pin header		1 x TPM 2.0 pin header	
IPMI	IPMI solution	N/A		N/A	
Networking	Ethernet IC	1 GbE NIC: Broadcom® BCM5720		1 GbE NIC: Broadcom® BCM5720	
	Ethernet Port	8 x 1GbE RJ45 LAN ports 4 x 10GbE SPF+ ports (Integrated in CPU)		8 x 1GbE RJ45 LAN ports	
	Bypass	N/A		N/A	
	Network Module Slot	1 x PuIM module slot		1 x PuIM module slot	
Expansion Slot	PCIe Slot	2 x PCIe 3.0 x4 (FHHL) slots		2 x PCIe 3.0 x4 (FHHL) slots	
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 3.0, USB 2.0)		1 x PCIe Mini card (PCIe 3.0, USB 2.0)	
	M.2	1 x 3042/2260 M.2 B key (SATA / USB 3.2 Gen1) Support SATA SSD and 4G LTE module		1 x 3042/2260 M.2 B key (SATA / USB 3.2 Gen1) Support SATA SSD and 4G LTE module	
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)		2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	
	eMMC	N/A		N/A	
	SD Card	N/A		N/A	
External I/O	VGA	N/A		N/A	
	USB	2 x USB 3.2 Gen 1		2 x USB 3.2 Gen 1	
	Console	1 x RJ45		1 x RJ45	
Internal I/O	HDMI	N/A		N/A	
	USB	1 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0		1 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0	
Power and Mechanical	Power Switch	1 x Power Switch		1 x Power Switch	
	Reset Button	1 x Reset Button		1 x Reset Button	
	Power Input	100 V ~ 240 V		100 V ~ 240 V	
	Type/Watt	Redundant Power 300W, 90V~264V AC		Redundant Power 300W, 90V~264V AC	
	Processor Cooling	1 x Passive CPU Heatsink		1 x Passive CPU Heatsink	
	System Cooling	4 x Cooling Fans with Smart fan		4 x Cooling Fans with Smart fan	
	Antenna Hole	1 x Antenna hole		1 x Antenna hole	
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)		-20°C ~ 75°C (-4°F ~ 167°F)	
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)		0°C ~ 40°C (32°F ~ 104°F)	
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing		Relative humidity: 5% ~ 90% non-condensing	
	Dimensions (W x L x H) (mm)	430 x 426 x 44.2		430 x 426 x 44.2	
	Weight	7 KG		7 KG	
OS and Certifications	Certification	CE / FCC/ RoHS		CE / FCC/ RoHS	
	Operating System	CentOS 7 / Red Hat / Fedora EPEL		CentOS 7 / Red Hat / Fedora EPEL	
Indicators	LCM	LCM, 2 buttons		LCM, 2 buttons	
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED		1 x Power LED, 1 x Storage LED, 1 x Alert LED	

PUZZLE Series



Model		PUZZLE-A002	PUZZLE-M801
		PUZZLE-A002-MF1	PUZZLE-M801-A1
Platform	Form Factor	1U	1U
	CPU	AMD R-Series RX-421ND processor, 4C, up to 3.4 GHz	Marvell® ARMADA® 88F8040 High-Performance CPU System on Chip, 4C, 1.6GHz
	Chipset	Integrated in CPU	Integrated in CPU
Memory	Memory Technology	DDR4 2400MHz ECC/Non-ECC UDIMM	DDR4 2400MHz ECC/Non-ECC/RDIMM
	Memory Capacity	Up to 32GB	Up to 16 GB
	Memory Socket	2 x 288-pin DIMM	1 x 288-pin DIMM
Network and Security	Network Acceleration and Security Function	• AES-NI encryption acceleration • AMD Secure Processor • Secure boot with AMD Hardware Validated Boot (HVB)	• Configurable packet processor • HW offload for networking • Acceleration engines for storage, networking and security • Public Key Processor (RSA/DH/ECC) • Secure Storage • Secure boot
	TPM	1 x TPM 2.0 pin header	N/A
IPMI	IPMI solution	N/A	N/A
Networking	Ethernet IC	1 GbE NIC: Broadcom® BCM5720	10 GbE PHY: SoC Marvell 88F8040 1 GbE PHY: Marvell 88E1512P
	Ethernet Port	6 x 1GbE RJ45 LAN ports	4 x 1GbE RJ45 LAN ports 2 x 10 GbE SFP+
	Bypass	N/A	N/A
	Network Module Slot	N/A	N/A
Expansion Slot	PCIe Slot	2 x PCIe 3.0 x4 (FHHL) slots	1 x PCIe x16 (FHHL) slot PCIe 3.0 x2 signal
	PCIe Mini Card Slot	1 x PCIe Mini card (PCIe 2.0, USB 2.0, Micro SIM slot)	N/A
	M.2	1 x 2230 M.2 A key (PCIe 2.0 / USB 2.0)	1 x M.2 B Key (3042/2260) (SATA 3.0 and USB 3.2 Gen 1) Support SATA SSD or 4G LTE module (USB signal)
Storage	Storage	2 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)	1 x 2.5" SATA HDD/SSD bay support SATA 3.0 (6 Gbps)
	eMMC	8 GB	32GB
	SD Card	N/A	N/A
External I/O	VGA	N/A	N/A
	USB	2 x USB 3.2 Gen 1	2 x USB 3.2 Gen 1
	Console	1 x RJ45	1 x RJ45
Internal I/O	HDMI	N/A	N/A
	USB	1 x USB USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0	1 x USB 2.0
Power and Mechanical	Power Switch	1 x Power Switch	1 x Power Switch
	Reset Button	1 x Reset Button	1 x Reset Button
	Power Input	100 V ~ 240 V	100 V ~ 240 V
	Type/Watt	ATX Power 250W, 90V~264V AC	ATX Power 250W, 90V~264V AC
	Processor Cooling	1 x Passive CPU Heatsink	1 x Active CPU Heatsink with fan
	System Cooling	4 x Cooling Fans with Smart fan	2 x Cooling Fans with Smart Fan
	Antenna Hole	1 x Antenna hole	1 x Antenna hole
Physical and Environmental	Storage Temperature	-20°C ~ 75°C (-4°F ~ 167°F)	-20°C ~ 75°C (-4°F ~ 167°F)
	Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)	0°C ~ 40°C (32°F ~ 104°F)
	Operating Humidity	Relative humidity: 5% ~ 90% non-condensing	Relative humidity: 5% ~ 90% non-condensing
	Dimensions (W x L x H) (mm)	430 x 320 x 44.2	430 x 320 x 44.2
	Weight	5 KG	5 KG
OS and Certifications	Certification	CE / FCC/ RoHS	CE / FCC/ RoHS
	Operating System	CentOS 7 / Red Hat / Fedora EPEL	Linux Ubuntu 16.04.04
Indicators	LCM	LCM, 2 buttons	N/A
	LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED	1 x Power LED, 1 x Storage LED, 1 x Alert LED

» 2U PuIM Series

Model	PuIM-1G4T/T-I350	PuIM-1G4T/T-I350-BP	PuIM-1G8T/T-I350	PuIM-1G8T/T-I350-BP
Chipset	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4
Bypass	No	Yes, two pairs	No	Yes, four pairs
Host Interface	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4
LAN Interface	RJ45	RJ45	RJ45	RJ45
Speed	GbE	GbE	GbE	GbE
LAN Port Number	4	4	8	8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)			
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			
Certification	CE/FCC/RoHS	CE/FCC/RoHS	CE/FCC/RoHS	CE/FCC/RoHS

Model	PuIM-1G4SF/T-I350	PuIM-1G8SF/T-I350	PuIM-10G4SF/T-XL710	PuIM-10G4SF/T-XL710-BP
Chipset	Intel® I350-AM4	Intel® I350-AM4	Intel® XL710	Intel® XL710
Bypass	No	No	No	Yes, two pairs
Host Interface	2 PCIe 2.0 x4	2 PCIe 2.0 x4	PCIe 3.0 x8	PCIe 3.0 x8
LAN Interface	SFP	SFP	SFP+	SFP+
Speed	GbE	GbE	1GbE/10GbE	1GbE/10GbE
LAN Port Number	4	8	4	4
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)			
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			
Certification	RoHS	RoHS	CE/FCC/RoHS	RoHS

Model	PuIM-10G2SF/T-X710	PuIM-10G4SF/T-MLX	PuIM-25G2SF/T-MLX	 PuIM-100G2SF-E810
Chipset	Intel® X710	Mellanox ConnectX-4	Mellanox ConnectX-4	Intel® E810
Bypass	No	No	No	No
Host Interface	PCIe 3.0 x8	2 PCIe 3.0 x4	PCIe 3.0 x8	PCIe 4.0 x8
LAN Interface	SFP+	SFP+	SFP+	QSFP28
Speed	1GbE/10GbE	1GbE/10GbE	1GbE / 10GbE / 25GbE	1GbE / 10GbE / 25GbE / 50GbE / 100GbE
LAN Port Number	2	4	2	2
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)			
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)			
Humidity	5% ~ 90% RH, non-condensing			
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)			
Certification	RoHS	CE/FCC/RoHS	CE/FCC/RoHS	RoHS

» 1U PuIM Series



	PuIM-1G4T-I211	PuIM-1G4T-I211-BP	PuIM-1G4T-I350	PuIM-1G4T-I350-BP	PuIM-1G8T-I350
Chipset	Intel® I211	Intel® I211	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4
Bypass	No	Yes, two pairs	No	Yes, two pairs	No
Host Interface	4 PCIe 2.0 x2	4 PCIe 2.0 x2	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4
LAN Interface	RJ45	RJ45	RJ45	RJ45	RJ45
Speed	GbE	GbE	GbE	GbE	GbE
LAN Port Number	4	4	4	4	8
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)				
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)				
Humidity	5% ~ 90% RH, non-condensing				
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)				
Certification	RoHS	RoHS	CE/FCC/RoHS	CE/FCC/RoHS	CE/FCC/RoHS



	PuIM-1G8T-I350-BP	PuIM-1G4SF-I350	PuIM-1G8SF-I350	PuIM-1G8T-BCM5720	PuIM-10G4SF-XL710
Chipset	Intel® I350-AM4	Intel® I350-AM4	Intel® I350-AM4	Broadcom BCM5720	Intel® XL710
Bypass	Yes, four pairs	No	No	No	No
Host Interface	2 PCIe 2.0 x4	2 PCIe 2.0 x4	2 PCIe 2.0 x4	4 PCIe 2.0 x2	PCIe 3.0 x8
LAN Interface	RJ45	SFP	SFP	RJ45	SFP+
Speed	GbE	GbE	GbE	GbE	1GbE/10GbE
LAN Port Number	8	4	8	8	4
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)				
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)				
Humidity	5% ~ 90% RH, non-condensing				
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)				
Certification	CE/FCC/RoHS	RoHS	RoHS	RoHS	CE/FCC/RoHS



	PuIM-10G4SF-XL710-BP	PuIM-10G2SF-X710	PuIM-10G4SF-MLX	PuIM-10G4T-AQC107	PuIM-25G2SF-MLX
Chipset	Intel® XL710	Intel® X710	Mellanox ConnectX-4	Aquantia AQC107	Mellanox ConnectX-4
Bypass	Yes, two pairs	No	No	No	No
Host Interface	PCIe 3.0 x8	PCIe 3.0 x8	2 PCIe 3.0 x4	4 PCIe 3.0 x2	PCIe 3.0 x8
LAN Interface	SFP+	SFP+	SFP+	RJ45	SFP+
Speed	1GbE/10GbE	1GbE/10GbE	1GbE/10GbE	10GBASE-T /5GBASE-T /2.5GBASE-T /1000BASE-T /100BASE-TX	1GbE / 10GbE / 25GbE
LAN Port Number	4	2	4	4	2
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)				
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)				
Humidity	5% ~ 90% RH, non-condensing				
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)				
Certification	RoHS	RoHS	CE/FCC/RoHS	RoHS	CE/FCC/RoHS

» 1U PuIM Series



	PuIM-2P1M	PuIM-M2-2S
Interface	1 PCIe 3.0 x4	2 PCIe 3.0 x4
Onboard IC	ASM1812 (PCIe Gen2x4) FL1100EX (PCI-E To USB 3.0 (4 Port))	N/A
M.2	1 x 2230/2242 M.2 B key (PCIe 2.0, USB 3.2 Gen1) with SIM card slot	2 x M key 2260/2280/22110 (PCIe 3.0 x4/NVMe)
PCIe	2 x PCIe Mini (PCIe 2.0, USB 2.0) with SIM card slot	N/A
Storage Temp.	-20°C ~ 75°C (-4°F ~ 167°F)	
Operating Temp.	0°C ~ 40°C (32°F ~ 104°F)	
Humidity	5% ~ 90% RH, non-condensing	
Dimensions (mm)	165.50 (L) x 77.8 (W) x 44.2 (H)	
Certification	RoHS	RoHS

» Network Accelerator Card



	Mustang-QA100-C627
Chipset	Intel® C627 Chipset
Interface	PCIe Gen3 x16
Compression / Decompression	100Gbps
Cooling	Active cooling
Operating Temperature	0°C ~ 40°C
Storage Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	0% ~ 90%, non-condensing
Dimension (mm)	144.27(L) x 68.9(W) x 15.43(H)
Certification	RoHS
Operating System Support	Linux

» GRAND-RE



Model	GRAND-RE-08B-RP	GRAND-RE-08B
CPU	AMD Ryzen™ Embedded V1500B quad-core 2.2 GHz processor	
Encryption Acceleration	AES-NI	
Memory	Maximum 32GB (2 x 16GB) 2 x Long-DIMM DDR4 For dual-DIMM configuration, you must use a pair of identical DDR4 modules.	
Drive Types	8 x 3.5"/2.5" SATA 6Gb/s HDDs/SSDs	
Gigabit LAN Port	2 x 2.5GbE LAN port	
PCIe Slot	1 x PCIe Gen 3 x8	
USB Ports	1 x USB 3.2 Gen1 Type-A port 2 x USB 3.2 Gen2 Type-C port 1 x USB 3.2 Gen2 Type-A port	
LED Indicator	Status/Power, LAN, USB, Drive 1 - 8	
Button	Power/Status, Reset	
Form Factor	2U Rackmount	
Dimension (H x W x D)	89 x 482 x 425 mm	
Net Weight	9.15 kg	8.04 kg
Operating temperature & Relative Humidity	0 to 40°C (32 to 104°F), 5 ~ 95% RH non-condensing, wet bulb: 27°C	
Power Supply	300W (x2), 100-240V AC, 50/60 Hz	250W, 100-240V AC, 50/60 Hz
Fan	2 x 80 mm, 12V DC	

» GRAND-GL



Model	GRAND-GL-04A	GRAND-GL-04A-RP
CPU	Intel® Celeron® J4125 quad-core 2.0 GHz processor (burst up to 2.7 GHz)	
System memory	Memory Slots SODIMM x 2 (MAX. 8GB)	
PCIe Slot	1 x PCIe Gen 2 x2 slot	
Drive Trays	4	
Drive Types	SATA 6Gb/s, 3Gb/s HDD or SSD; Hot-swappable	
USB	2 x USB 2.0 (Rear) / 2 x USB 3.2 Gen 1	
LAN Ports	2 x 2.5GbE	
HDMI Output	1 x HDMI 1.4b	
LED Indicators	System Status, HDD, Expansion, LAN	
Buttons	Power, Reset	
Form Factor	1U, rack mountable	
Dimensions	43.3 (H) x 482.6 (W) x 483.9 (D) mm	
Net Weight	6.6 kg	8.12 kg
Temperature	0-40°C	
Relative Humidity	5~95% R.H.	
Power Supply	ATX 250W (single)	2 x ATX 250W (redundant)
Fan	2 x 40mm, 12V	

» GRAND-SE



Model	GRAND-SE-04A	GRAND-SE-04A-RP	GRAND-SE-08B	GRAND-SE-08B-RP	GRAND-SE-12B	GRAND-SE-12B-RP
CPU	64-Bit Quad-Core AMD® G-Series 2.0GHz					
Memory	Total memory slots: 2 SODIMM; Memory expandable up to 16GB DDR3L (8GB x 2)					
Max. HDDs/SSDs	4		8		12	
HDDs/SSDs Type	2.5" or 3.5" SATA 6Gb/s, 3Gb/s; hot-swappable					
Expansion Unit Support	Max. 1 expansion unit					
LAN Ports	4 x GbE ports					
USB Ports	USB 3.2 Gen 1 (5Gb/s): 2, USB 2.0: 3		USB 3.2 Gen 1 (5Gb/s): 2, USB 2.0: 2		USB 3.2 Gen 1 (5Gb/s): 2, USB 2.0: 2	
PCIe Slot	1 x PCIe 2.0 x 4 slot					
LED Indicators	Status, LAN, USB, HDD1-4		Power, Status, LAN, USB, HDD1-8		Power, Status, LAN, USB, HDD1-12	
Buttons	Power, Reset, USB Auto Copy		Power, Reset		Power, Reset	
Form Factor	1U Rackmount		2U Rackmount		2U Rackmount	
Dimensions (HxWxD)	1.73 x 17.28 x 19.65 inch		89 x 482 x 534 mm / 3.50 x 18.97 x 21.02 inch			
Weight (Net/Gross)	7.63 / 11.60 kg 16.82 / 25.57 lb		11.02 / 19.26 kg 24.29 / 42.46 lb		16.14 / 19.41kg 35.58 / 41.84 lb	
Temperature and Humidity	0-40°C, 5~95% RH non-condensing, wet bulb: 27°C					
Power Supply Specification	Input: 100-240V AC, 50/60Hz; Output: 250W					
	250W	2 x 250W	250W	2 x 250W	250W	2 x 250W

» AFL3 Apollo Lake with PoE



LCD Size		7”		10.1”	12.1”	15.6”
Model		AFL3-W07A-AL	AFL3-W07A-AL2	AFL3-W10A-AL	AFL3-12A-AL	AFL3-W15A-AL
LCD	Size	7”		10.1”	12.1”	15.6”
	Resolution	1024 x 600 (16:9)		1280 x 800 (16:10)	1024 x 768 (4:3)	1366 x 768 (16:9)
	Brightness (cd/m²)	500		350	500	300
	Contrast Ratio	700:1		800:1	700:1	500:1
	Viewing Angle (H-V)	150 / 145		170 / 170	160 / 160	170 / 160
	Backlight MTBF	20000		15000	50000	50000
Touch	Touch Screen	PCAP with USB interface (anti-UV/AG coating)		PCAP with USB interface (anti-UV/anti-glare coating)		
	Touch Controller	EETI 80H60		EXC3146	EXC3146	EXC3160
Mainboard	CPU	Intel® Celeron N3350 (2M Cache, up to 2.4 GHz) TDP 6W		Apollo lake Intel® Celeron® Processor J3455 (2M Cache, up to 2.3 GHz) TDP 10W		
	RAM	one 204-pin 1866MHz DDR3L DIMMs support up to 8GB				
	Ethernet	LAN1: Intel® I211 + LAN2: Intel® I211	LAN1: Intel® I211	LAN1: Intel® I211 + LAN2: Intel® I211		
	Audio Codec	ALC888				
Storage		1 x M.2 B+M key 2242 slot (USB/SATA signal)		1 x M.2 B+M key 2242 slot (USB/SATA signal)	*1 x 2.5" SATA 3Gb/s HDD bay (optional one of the two) 1 x M.2 B+M key 2242 slot (USB/SATA signal)	
I/O Ports & Switch		2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 1 x 12V DC Jack 1 x power switch 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch		1 x RS-232/422/485 by RJ45 1 x RS-232 by DP9 2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI output 1 x 9V~30V DC Jcack 1 x power switch 1 x Line out 1 x Reset button 1 x Clear CMOS button 1 x AT/ATX switch		
E-Window expansion		N/A		N/A	Yes (option)	Yes (option)
PoE IEEE802.3bt		On board PoE at		Yes (option single channel)		
Audio		AMP 2W (internal speaker)		AMP 2W + 2W	AMP 3W + 3W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera / Microphone		N/A		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.2 (1 x M.2 A + E key 2230)				
Physical	Construction Front Panel	PC + ABS Plastic				
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm			Panel, Wall, Stand and Arm VESA 75mm x 75mm, 100mm x 100mm	
	Color	Black C				
	Dimensions (W x H x D)(mm)	191 x 127 x 43		262 x 181 x 42	304 x 243 x 44	396 x 250 x 53
	Cut-out Dimensions (W x H)	182 x 111		236 x 149	243 x 205	273 x 226
	Net/Gross Weight (kgs)	0.73/1.81		1.06/2.58	1.92/3.95	3.3/5.6
Environment	Operating Temperature (°C) (Ambient with air flow)	minus -20°C~50°C				
	Storage Temperature (°C)	minus -20°C~60°C				
	Humidity	10% to 95% (non-condensing)				
	IP Level	IP 65 compliant front panel		IP 64 compliant front panel		
	Safety&EMC	CE / FCC class A				
	Thermal Solution	Fanless				
Power	Power Requirement	12V only		9V~30V		
ErP		ErP 2009/125/EC				

AFL3 Whiskey Lake with PoE



LCD Size		15.6”	18.5”	21.5”
Model		AFL3-W15C-ULT5	AFL3-W19C-ULT5	AFL3-W22C-ULT5
LCD	Size	15.6”	18.5”	21.5”
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)	1920 x 1080 (16:9)
	Brightness (cd/m²)	300	250	250
	Contrast Ratio	500:1	1000:1	1000:1
	Viewing Angle (H-V)	170°/160°	170°/160°	170°/160°
	Backlight MTBF (hrs)	50000	30000	30000
Touch	Touch Screen	PCAP with USB interface (anti-UV/AG coating)		
	Touch Controller	EXC3160		
Mainboard	CPU	Intel® Whiskey Lake-U quad-core processor		
	Memory	Two 260-pin 2400MHz dual-channel DDR4 SO-DIMMs supporting up to 32 GB		
	Ethernet	LAN1 & LAN2: Intel® I211; LAN3: Intel® I219		
	Audio Codec	ALC888S		
Storage		1 x M.2 M-key 2280 PCIe 3.0 x4 (PCIe/SATA Signal)		
		1 x 2.5" SATA 3Gb/s HDD bay		
I/O Ports & Switch		2 x PoE GbE LAN (optioal IEEE802.3af/at/bt) 1 x GbE LAN 4 x USB 3.2 Gen.2 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 1 x 12V DC jack 1 x Power switch 1 x AT/ATX switch		
E-Window Expansion		PCIe Mini slot (PCIe+USB)		
Audio		AMP 3W + 3W (internal speaker)		
Camera / Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 A+E key 2230 slot (PCIe/USB signal)		
Physical	Construction Front Panel	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm , 100mm x 100mm		
	Color	Black C		
	Dimensions (W x H x D) (mm)	396 x 250 x 64	470 x 290 x 70	528 x 336 x 68
	Cut-out Dimensions (W x H)	369 x 226	443 x 261	502 x 303
	Net/Gross Weight (kgs)	4.5/6.5	7.3/10	8.27/11.27
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C		
	Storage Temperature (°C)	-20°C~60°C		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC class A		
	Thermal Solution	Fanless		
Power	Power Requirement	12V, 8A		
		PoE IEEE802.3af/at/bt (redundancy, power load-sharing)		
ErP		ErP 2009/125/EC		

AFOLUX GEN III



LCD Size		7”	8.4”	10.1”
Model		AFL3-W07A-BT	AFL3-08A-BT	AFL3-W10A-BT
LCD	Size	7”	8.4”	10.1”
	Resolution	1024 x 600 (16:9)	800 x 600 (4:3)	1280 x 800 (16:10)
	Brightness (cd/m²)	500	450	350
	Contrast Ratio	700:1	600:1	800:1
	LCD Color	16.2M	16.2M	16.2M
	Pixel Pitch (mm)	0.0635 (H) x 0.1905 (V)	0.213 (H) x 0.213 (V)	0.1695 (H)×0.1695 (V)
	Viewing Angle (H-V)	150° / 145°	160° / 140°	170° / 170°
	Backlight MTBF(hrs)	20000 hrs	50000 hrs	15000 hrs
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)	5-wire resistive with RS-232 interface (anti-glare coating) Projected capacitive with USB interface (anti-UV / anti-glare coating)	Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	EETI EXC3160	PenMount DMC 9000/EETI EXC3146	EETI EXC3146
Motherboard	CPU	Intel® Celeron® N2807 (dual core, 1.58 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)	Intel® Celeron® J1900 (quad core, 2.0 GHz)
	RAM	2GB DDR3L onboard RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG	2 x PCIe GbE by RTL8111HN-CG controller	2 x PCIe GbE by RTL8111HN-CG controller
	Audio Codec	ALC888S	ALC888S	ALC888S
Storage		mSATA	mSATA	1 x mSATA (E-Window)
I/O Ports & Switch		2 x RS-232 COM port (DB-9 connector) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V Lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (R/I/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V DC Lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (R/I/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V DC lockable power jack
Audio		AMP 2W (internal speaker, left channel output)	AMP 2W + 2W (internal speaker)	AMP 2W + 2W (internal speaker)
Camera and Microphone		N/A	2-megapixel with low light function, digital microphone	
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac / Bluetooth 4.2 half-size mini-PCIe slot (PCIe / USB signal)	IEEE 802.11 a/b/g/n/ac / Bluetooth 4.2 half-size mini-PCIe slot (PCIe / USB signal)	IEEE 802.11 a/b/g/n/ac / Bluetooth 4.2 half-size mini-PCIe slot (PCIe / USB signal)
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand, Arm, Rack and VESA 75mm x 75mm		
	Color	Black C		
	Dimensions (WxHxD) (mm)	191 x 127 x 43	233 x 175 x 50	262 x 181 x 42
	Cut-out Dimensions (WxH) (mm)	182 x 111	207 x 143	236 x 149
	Net/Gross Weight (kgs)	0.73/1.81	0.8/2.44	1.06/2.58
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C	-15°C~55°C	-10°C~50°C
	Storage Temperature (°C)	-20°C~60°C	-20°C~65°C	-20°C~60°C
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 65 compliant front panel	IP 64 compliant front panel	
	Safety&EMC	CE / FCC		
	Thermal Solution	Fanless		
Power	Power Requirement	9 V ~ 30 V DC		
	Power Consumption	12V@2.08 (Intel® N2807 CPU with 2GB 1333 MHz DDR3L memory)	12V@2A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)	12V@2.3A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)

» AFOLUX GEN III



LCD Size		12.1"	
Model		AFL3-12A-BT	AFL3-12C-ULT3
LCD	Size	12.1"	12.1"
	Resolution	1024 x 768 (4:3)	1024 x 768 (4:3)
	Brightness (cd/m²)	500	500
	Contrast Ratio	700:1	700:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	0.240 (H) x 0.240 (V)
	Viewing Angle (H-V)	160° / 160°	160° / 160°
	Backlight MTBF(hrs)	50000 hrs	50000 hrs
Touch	Touch Screen	5-wire resistive with RS-232 interface (anti-glare coating) Projected capacitive with USB interface (anti-UV / anti-glare coating)	Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	PenMount DMC9000/ EETI EXC3146	EETI EXC3180
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2.0 GHz)	6th Generation Intel® Core™ i5 on-board processor
	RAM	One 204-pin 2 GB 1333MHz single-channel, 2GB DDR3L SO-DIMM pre-installed (system max. 8GB)	One 260-pin 2133MHz single-channel, 4GB DDR4 SO-DIMM pre-installed (system max. 8GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG controller	2 x PCIe GbE by Intel® i211 controller
	Audio Codec	ALC888S	
Storage		1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay	1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay
I/O Ports & Switch		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector)(RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 2 x RJ-45 for GbE LAN 1 x Power switch 1 x Audio port (line-out) 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack	1 x RS-232/422/485 (DB-9) 1 x RS232 (RJ-45) 2 x GbE LAN 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x DC jack (12-30V DC) 1 x HDMI 1 x Power switch 1 x Reset button 1 x AT/ATX switch
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe or SATA / USB signal)	Yes, optional (full-size mini-PCIe slot with PCIe or SATA / USB signal)
Audio		AMP 3W + 3W (internal speaker)	AMP 3W + 3W (internal speaker)
Camera and Microphone		2-megapixel with low light function, digital microphone	
Wireless		IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD	
Physical	Front Panel Construction	PC + ABS Plastic	
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	Panel, Wall, Stand and Arm VESA 75mm x 75mm / VESA 100mm x 100mm
	Color	Black C	
	Dimensions (WxHxD) (mm)	304 x 243 x 44	304 x 243 x 58
	Cut-out Dimensions (WxH) (mm)	243 x 205	272 x 223
	Net/Gross Weight (kgs)	1.92/3.95	3/5.03
Environment	Operating Temperature (Ambient with air flow)	-20°C~50°C	-20°C ~ 50°C
	Storage Temperature	-20°C~60°C	-30°C ~ 60°C
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 64 compliant front panel	
	Safety&EMC	CE / FCC	CE , FCC , ErP 2009/125/EC
	Thermal Solution	Fanless	
Power	Power Requirement	9 V ~ 30 V DC	12 V ~ 30 V DC
	Power Consumption	12V@3.58A (Intel® J1900 CPU with 2GB 1333 MHz DDR3L memory)	12V@6A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)

AFOLUX GEN III



LCD Size		15.6"	
Model		AFL3-W15A-BT	AFL3-W15C-ULT3
LCD	Size	15.6"	
	Resolution	1366 x 768 (16:9)	
	Brightness (cd/m ²)	400	
	Contrast Ratio	500:1	
	LCD Color	16.2M	
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	
	Viewing Angle (H-V)	170° / 160°	
	Backlight MTBF(hrs)	50000 (LED backlight)	
Touch	Touch Screen	5-wire resistive with RS-232 interface (anti-glare coating), Projected capacitive with USB interface (anti-UV / anti-glare coating)	Projected capacitive with USB interface (anti-UV / anti-glare coating)
	Touch Controller	PenMount DMC9000 / EETI EXC3188	PenMount DMC9000 / EETI EXC3188
Motherboard	CPU	Intel® Celeron® J1900 (quad core, 2 GHz)	6th Generation Intel® Core™ i5 and Celeron® on-board processor
	Chipset		
	RAM	One 204-pin 1333 MHz single-channel DDR3L SO-DIMM, 2GB pre-installed (system max. 8GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x PCIe GbE by RTL8111HN-CG controller	2 x Intel® I211 PCIe GbE controller
	Audio Codec	ALC888S	
Storage		1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay	1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110 PCIe signa)
I/O Ports & Switch		1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9-30V lockable power jack	1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe or SATA / USB signal)	Yes, optional (full-size mini-PCIe slot with PCIe or SATA / USB signal)
Audio		AMP 3W + 3W (internal speakers)	
Camera and Microphone		2-megapixel with low light function, digital microphone	
Wireless & Bluetooth		IEEE 802.11a/b/g/n/ac half-size mini-PCIe slot (PCIe signal)	IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)
OSD Function		Software OSD	
Physical	Front Panel Construction	PC + ABS Plastic	
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	
	Color	Black C	
	Dimensions (WxHxD) (mm)	396 x 250 x 53	396 x 250 x 64
	Cut-out Dimensions (WxH) (mm)	273 x 226	369 x 226
	Net/Gross Weight (kgs)	3.3/5.6	4.5/6.5
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C~50°C	-20°C~50°C
	Storage Temperature (°C)	-20°C~60°C	
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 64 compliant front panel	
	Safety & EMC	CE / FCC	
	Thermal Solution	Fanless	Fanless
Power	Power Requirement	9 V ~ 30 V	
	Power Consumption	12V@4.16A (Intel® J1900 CPU with 2GB 1333 MHz DDR3 memory)	12V@.6A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)

AFOLUX GEN III



LCD Size		18.5"		21.5"
Model		AFL3-W19C-ULT3	AFL3-W19A-AL	AFL3-W22C-ULT3
LCD	Size	18.5"	18.5"	21.5"
	Resolution	1366 x 768 (16:9)	1366 x 768 (16:9)	1920 x 1080
	Brightness (cd/m ²)	250		
	Contrast Ratio	1000:1		
	LCD Color	16.7M	262K	16.7M
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	0.240 (H) x 0.240 (V)	248.25 (H) x 248.25 (V)
	Viewing Angle (H-V)	170°/160°		
	Backlight MTBF(hrs)	30,000 (LED backlight panel)		
Touch	Touch Screen	Projected capacitive with USB interface (anti-UV / anti-glare coating)		
	Touch Controller	EETI EXC3180	EETI EXC3188	EETI EXC3180
Motherboard	CPU	Intel® Core™ i5 and Celeron® ULT Processor	Intel® Celeron® J3455 (quad core, 1.5GHz up to 2.3 GHz)	Intel® Core™ i5 and Celeron® ULT Processor
	RAM	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	One 204-pin 1600/1333 MHz single-channel DDR3L SO-DIMM, 4GB pre-installed (system max. 8GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
	Ethernet	2 x Intel® I211-AT PCIe GbE controller	2 x PCIe GbE by Intel® i211 controller	2 x Intel® I211-AT PCIe GbE controller
	Audio Codec	ALC888S	ALC269	ALC888S
Storage		1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110 PCIe signa)	1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay	1 x mSATA (E-Window) 1 x 2.5" SATA 3Gb/s HDD bay 1 x M.2 M key PCIe (2280 or 22110 PCIe signa)
I/O Ports & Switch		1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9V ~ 30V lockable power jack	1 x RS-232/422/485 by RJ-45 1 x RS-232 by RJ-45 2 x GbE LAN 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI output 1 x 12V ~ 34V DC Jack 1 x Power switch 1 x AT/ATX switch 1 x Line out	1 x RS-232 by DB-9 (RI/5V/12V) 1 x RS-232/422/485 by DB-9 (RI/5V/12V) 2 x GbE LAN 4 x USB 3.2 Gen 1 (5Gb/s) 1 x HDMI output 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x 9-30V lockable power jack
E-Window Expansion		Yes, optional (full-size mini-PCIe slot with PCIe or SATA / USB signal)		
Audio		AMP 3W + 3W (internal speaker)		
Camera and Microphone		2-megapixel with low light function, digital microphone		
Wireless & Bluetooth		IEEE 802.11 a/b/g/n/ac, Bluetooth V4.1 M.2 slot A+E key 2230 slot (PCIe/USB signal)		
OSD Function		Software OSD		
Physical	Front Panel Construction	PC + ABS Plastic		
	Mounting	Panel, Wall, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm	Panel, Wall, Stand and Arm VESA 100mm x 100mm	Panel, Wall, Stand and Arm VESA 75mm x 75mm / 100mm x 100mm
	Color	Black C		
	Dimensions (W x H x D) (mm)	470 x 290 x 70	470 x 280 x 60	528 x 336 x 68
	Cut-out Dimensions (W x H) (mm)	443 x 261	418 x 230	502 x 303
	Net/Gross Weight (kgs)	7.3/10	6.3/9	8.27/11.27
Environment	Operating Temperature (Ambient with air flow)	-20°C ~ 50°C	-15°C ~ 50°C	-20°C ~ 50°C
	Storage Temperature	-20°C ~ 60°C		
	Humidity	10% to 95% (non-condensing)		
	IP Level	IP 64 compliant front panel		
	Safety & EMC	CE / FCC		
	Thermal Solution	Fanless		
Power	Power Requirement	9V ~ 30V DC	12V ~ 34V DC	9 V ~ 30 VDC
	Power Consumption	12V@7.1A (Intel® Core™ i5-6300U CPU with 4GB DDR4 2133 MHz DDR4 memory)	12V@3.2A (Intel® Celeron J3455 CPU with 4GB DDR3L 1866 MHz DDR3L memory)	12V@6A (Intel® Core™ i5-6300U CPU with 4GB DDR42133 MHz DDR4 memory)

AFOLUX GEN II



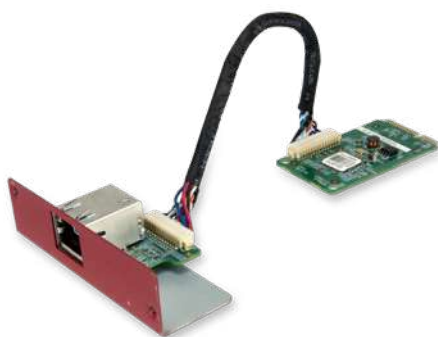
Model		AFL2-12A-HM65	
LCD Specifications	Size	12.1"	
	Resolution	1024 (W) x 768 (H)	
	Brightness (cd/m²)	600	
	Contrast Ratio	700:1	
	LCD Color	16.2 M	
	Pixel Pitch (mm)	0.240 (H) x 0.240 (V)	
	Viewing Angle (H-V)	160° / 140°	
	Backlight MTBF	50000 hrs (LED backlight)	
Touch	Touch Screen	5-wire rsistive type with RS-232 interface / projected capacitive type with USB interface	
	Touch Controller	PenMount DMC9000 / EETI EXC7200 & EXC5400	
System	CPU	2nd Generation Intel® Core™ i7/ i5/ i3 and Celeron® processor	
	Chipset	Intel® HM65	
	RAM	Support one 204-pin DDR3 SO-DIMM slot (Max. 4GB)	
	Ethernet	Realtek RTL8111E PCIe GbE controller supporting ASF 2.0	
	Storage	2.5" SATA 6Gb/s SSD bay	
	Input / Output	1 x RS-232 (DB-9) 1 x RS-232 (RJ-45) 1 x RS-422/485 (4-pin box header) 2 x GbE LAN (RJ-45) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x Mini USB 2.0 port on front panel 1 x Audio jack (line-out)	1 x HDMI port 1 x MicroSD card slot on front panel 1 x Power switch 1 x AT/ATX switch 1 x Reset button 1 x Clear CMOS button 1 x DC input jack
	Other Features	Audio	AMP 3W + 3W (internal speaker)
Camera		2 M pixels with low light function	
RFID Reader		EM 125 KHz or Mifare 13.56 MHz card reader (optional)	
MSR Card Reader		MSR card reader (optional)	
OSD Function		LCD on/off, brightness up/down, volume up/down, Hot Key	
Ambient Light Sensor		Yes	
Infrared Remote Controller		Yes	
System Cooling		Smart fan	
Connectivity	Wireless	IEEE 802.11b/g/n module Telec certified	
Physical	Construction Front Panel	PC + ABS Plastic	
	Mounting	Panel, Wall, Rack, Stand and Arm VESA 100 mm x 100 mm	
	Color	Black	
	Dimensions (WxHxD)(mm)	310 x 265 x 52.6	
	Weight (N/G)	3.8 kg / 6.1 kg	
Environment	Operating Temperature (°C) (Ambient with air flow)	-20°C ~ 50°C with SSD	
	Storage Temperature (°C)	-20°C ~ 60°C	
	Humidity	10% to 95% (non-condensing)	
	IP Level	IP 64 compliant front panel	
	Safety&EMC	CE / FCC	
Power	Power Supply	90W power adapter Input: 100VAC~240VAC, 50/60Hz Output: 19VDC	
	Power Requirement	9 ~ 36 VDC	
	Power Consumption	19W@2.68A (Intel® Core™ i5-2510E processor with 4GB DDR3 memory)	

MODAT-550A



Model		MODAT-550A-OA53-R10	MODAT-550A-OA53-ET-R10
Display	LCD size	5.5"	
	Brightness (cd/m²)	300 cd/m²	
	Max. Resolution	1080 x 1920 (Full HD)	
	Viewing Angle	80/80/80/80 Deg.	
	Touchscreen	5-point capacitive	
System	CPU	Octa-core 64-bit Cortex-A53 1.5 GHz processor	
	Operating System	Android 7.0	
	Memory	16GB eMMC 2GB LPDDR3	
	Storage	microSD slot up to 64GB	
	Wi-Fi	802.11a/b/g/n	
Communication	Bluetooth	4.0 LE	
	Modem (Optional)	GSM (850, 900, 1800, 1900) WCDMA (Band 1, 2, 5, 8) TDS-CDMA (Band 34, 39) LTE FDD (Band 1, 2, 3, 4, 5, 7, 8, 20) TDD (Band 38, 39, 40, 41b)	
	GPS	GPS/Glonass	
	NFC	Yes	
Data Collection	Barcode	1D/2D imager scan engine	N/A
	Camera	13-megapixel AF rear camera	
Indicators & Buttons	LED Indicators	Green/Red	
I/O Interface	Audio	1 x 0.5W speaker 1 x Headset/Mic-in	
	USB	1x High-speed Micro USB 2.0 OTG	
Power	Power Adapter	5V/3A	
	Battery	4000 mAh	
Enviroments	Operating Temperature	-10°C ~ 50°C	
	Storage Temperature	-20°C ~ 60°C	
	Humidity	10% ~ 95%, non condensing	
	Drop Survival	1.5m	
	Environmental Protection	IP 65	
Physical	Dimensions (L x W x H)	160.9 mm x 85.4 mm x 28.85 mm	
	Weight	Under 380g	

» E-MPCIE-LAN-R10



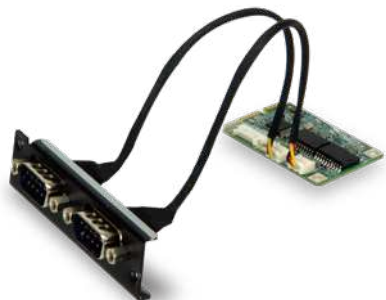
Model	E-MPCIE-LAN-R10
Form Factor	PCI Express Mini card
Ethernet Controller	Realtek RTL8111E
Speed	10/100/1000Mbps
External Connector	1 x 8-pin RJ-45
Compatible OS	Windows 2000/ XP/ Server 2003/ Server 2008/ Vista/ 7 Linux kernel version 2.6.32 or above
Power Supply	On board 3.3V
Operating Temperature	-10°C ~ 70°C
Operating Humidity	5% ~ 95%, non-condensing
Dimensions (LxW)	51 mm x 30 mm
Weight	70g
Safety & EMC	CE/FCC compliant

» E-MPCIE-DLAN-R10



Model	E-MPCIE-DLAN-R10
Form Factor	PCI Express Mini card
BIOS	UEFI BIOS
Ethernet Controller	Dual Intel® I210-IT
Speed	10/100/1000Mbps
External Connector	2 x 8-pin RJ-45
Power Supply	On board 3.3V
Compatible OS	Windows XP/Server 2003/ Server 2008/ Vista/ 7 /8.1/10 Linux kernel version 2.6.32 or above
Operating Temperature	-10°C ~ 70°C
Operating Humidity	5% ~ 95%, non-condensing
Dimensions (LxW)	51 mm x 30 mm
Weight	55g
Safety & EMC	CE/FCC compliant

» E-MPCIE-CAN-R10



Model	E-MPCIE-CAN-R10
Form-factor	full-size PCIe Mini
Input I/F	PCIe Mini interface (USB interface)
Communication Baud Rate	50/125/250/500/1000K @ 40meter
Host Site Connector	Internal USB port (PCIe Mini via USB)
Output I/F	2 x CAN Bus 2.0B port with optional isolation
CANBus Connector	two 3-pin (GND, CAN_H, CAN_L) male type wafer connectors (p=1.25 mm)
Support Voltage and Current	5.0 V
Output Connector	D-Sub 9P to 1x3P-1.25 mm + G-TEM, L=30cm
LED Status	D1 Green, Power on/off LED D2 Red, CAN-1 Tx LED D3 Red, CAN-2 Tx LED
Operating Temperature	-40 to +85 °C
Storage Temperature	-40 to +85 °C
OS Support	Windows /Linux
Dimensions (L x W x H)	30 x 50.9 x 6 mm
EMI	-Complies with EN61000-4-5 2.5kV surge protection -Complies with IEC 60950-1:2005 + A1: 2009 + A2:2013 2.5kV HiPOT protection -Complies with EN61000-4-2 (ESD) Air-15kV, Contact-8kV

» E-MPCIE-3G-R10



Model	E-MPCIE-3G-R10
Form Factor	PCI Express Mini card Antenna 50Ohms. Main GSM/UMTS antenna
Frequency Bands	GSM/GPRS/EDGE: 850/900/1800/1900 GPRS/EDGE Class12 UMTS/HSPA+: Dual band UMTS 800/850/900/1900/2100 MHz
USB	USB 2.0 High Speed (480Mbit/s) device interface
Compatible OS	Windows® 8, Windows® 7, Windows EC, Linux, Android
Operating Temperature	Normal operation: -30°C to +85°C Restricted operation: -40°C to +95°C
Dimensions (W x D x H)	51.0 mm x 30.0 mm x 4.75 mm

PPC-F-ULT5 Series



LCD Size		15"	15.6"
Model		PPC-F15D-ULT5	PPC-FW15D-ULT5
TFT LCD	LCD Size	15"	15.6"
	Max. Resolution	1024 x 768	1366 x 768
	Brightness (cd/m²)	450	400
	Contrast Ratio	800:1	500:1
	LCD Color	16.2M	16.2M
	Pixel Pitch (mm)	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H/V)	160°/150°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating	
	Touch Controller	EETI EXC3000	
System	CPU	8th Generation Intel® Core™ i5-8365UE 4.10GHz 8th Generation Intel® Celeron® 4305UE 2.00GHz	
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode	
	Ethernet	2 x Intel® I211, 1 x Intel® I219	
Storage		2.5" HDD/SSD SATA 6Gb/s bay	
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEI pin definition)	
Thermal Solution		Fanless	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	Dimensions (mm) (W x H x D)	378.5 x 303 x 75	400.1 x 253.3 x 77.1
	Cutout Dimensions (W x H) (mm)	361.1 x 285.6	379.1 x 232.3
	Net Weight (kg)	6.1	7.1
	Color	PANTONE 296 C	
	Front Frame	Aluminum die-casting	
	Rear Cover	Sheet metal	
	Mounting	Wall mount, Panel mount, Rack mount	
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)	
	Storage Temp.	-20°C ~ 60°C	
	Humidity	10% ~ 95% (non-condensing)	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	
	Safety & EMC	CE / FCC class A	
Power Input		12V DC input	

PPC-F-ULT5 Series



LCD Size		17"	18.5"
Model		PPC-F17D-ULT5	PPC-FW19D-ULT5
TFT LCD	LCD Size	17"	18.5"
	Max. Resolution	1280 x 1024	1366 x 768
	Brightness (cd/m ²)	350	400
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3
	Viewing Angle (H/V)	170°/160°	170°/160°
	Backlight MTBF (Hrs)	50,000	50,000
Touch Screen	Touchscreen Type	Projected capacitive type with 10-point multitouch and anti-glare coating	
	Touch Controller	EETI EXC3000	
System	CPU	8th Generation Intel® Core™ i5-8365UE 4.10GHz 8th Generation Intel® Celeron® 4305UE 2.00GHz	
	Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, 4K codec decode	
	Ethernet	2 x Intel® I211, 1 x Intel® I219	
Storage		2.5" HDD/SSD SATA 6Gb/s bay	
I/O Ports and Switches		4 x USB 3.2 Gen 2 (10Gbps) 1 x HDMI output 1 x RS-232/422/485 1 x RS-232 3 x GbE LAN (2 for PoE PD GbE LAN)	1 x 12V DC jack 1 x Power switch with LED indicator (blue) 1 x AT/ATX switch 1 x Line-out 1 x Reset button
Expansion Slots		1 x NGFF M.2 2230 A Key (PCIe x1, USB signal) 1 x NGFF M.2 2280 M Key (support PCIe 3.0 x4 NVMe) 2 x PoE PD module socket (by IEL pin definition)	
Thermal Solution		Fanless	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	Dimensions (mm) (W x H x D)	408.4 x 341.4 x 75.6	469.8 x 289.2 x 76.9
	Cutout Dimensions (mm)	391 x 324	447.8 x 257.2
	Net Weight (kgs)	7.2	7.3
	Color	PANTONE 296 C	
	Front Frame	Aluminum die-casting	
	Rear Cover	Sheet metal	
	Mounting	Wall mount, Panel mount, Rack mount	
Environmental	Operating Temp.	-10°C ~ 50°C (with air flow)	
	Storage Temp.	-20°C ~ 60°C	
	Humidity	10% ~ 95% (non-condensing)	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	
	Safety & EMC	CE / FCC class A	
Power Supply		12V DC input	

PPC-F-Q370 Series



LCD Size		15"	W15"
Model		PPC-F15C-Q370	PPC-FW15C-Q370
TFT LCD	LCD Size	15"	15.6"
	Max. Resolution	1024x768	1366x768
	Brightness (cd/m ²)	450	400
	Contrast Ratio	800:1	500:1
	LCD Color	16.2M	16.2M
	Viewing Angle (H/V)	160°/150°	170°/160°
	Backlight MTBF (Hrs)	70,000	50,000
Touch Screen		PCAP touch with 10-point multitouch, anti-glare coating	
Mainboard	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package	
	Chipset	Intel® Q370 Chipset	
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2 x, ES 2.0	
	Ethernet	Intel® I211 & I219 controller	
Storage		(1) 4 x Accessible 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator (2) 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket	
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in	1 x Line out 1 x AC power in Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (maximum card size supported: 68 mm x 167 mm) 1 x NGFF M.2 (2230) A Key socket (support Wi-Fi) 1 x NGFF M.2 (3042) B Key socket (support WWAN with SIM slot)	
Thermal Solution		Smart Fan	
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A, +5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A, +5Vsb@3A - Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	IP Rating	IP66-rated front panel	
	Chassis Construction	Metal Housing	
	Mounting	Rack/Panel Mount	
	Color	Front Bezel : Cyan-blue (PSM 296C), Others: Black C	
	Cut-out dimensions (LxDxH) (mm)	361.1 x 285.6	379.1 x 232.3
	Dimensions (LxDxH) (mm)	378.5 x 303 x 118	400.1 x 253.3 x 121
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and up to TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)	
	Storage Temperature	-30°C ~ 60°C	
	Operating Humidity	5% ~95%, non-condensing	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	

PPC-F-Q370 Series



LCD Size		17"	18.5"
Model		PPC-F17C-Q370	PPC-FW19C-Q370
TFT LCD	LCD Size	17"	18.5"
	Max. Resolution	1280x1024	1366x768
	Brightness (cd/m ²)	350	400
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M
	Viewing Angle (H/V)	170°/160°	170°/160°
	Backlight MTBF (Hrs)	50,000	50,000
Touch Screen		PCAP touch with 10-point multitouch, anti-glare coating	
Mainboard	CPU	8th Generation Intel® Core™ i7/i5/i3 and Pentium® processor in the LGA 1151 package	
	Chipset	Intel® Q370 Chipset	
	Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM slot supporting up to 64GB	
	Graphics Engine	Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL 2.x, ES 2.0	
	Ethernet	Intel® I211 & I219 controller	
Storage		(1) 4 x Accessible 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support) with LED indicator (2) 2 x M.2 2280 PCIe Gen 3.0 x4 NVMe™ SSD socket	
I/O Ports and Switches		1 x HDMI output 2 x GbE LAN 6 x USB 3.2 Gen 1 (5Gb/s) Type-A 2 x RS-232 DB-9 type 1 x Mic in	1 x Line out 1 x AC power in Inlet Power button with power LED (power on=Blue) AT/ATX mode switch Reset button
Expansion Slots		2 x PCIe 3.0 by 8 (by 16 slot) 2 x PCIe 3.0 by 4 (maximum card size supported: 68 mm x 167 mm) 1 x NGFF M.2 (2230) A Key socket (support Wi-Fi) 1 x NGFF M.2 (3042) B Key socket (support WWAN with SIM slot)	
Thermal Solution		Smart Fan	
Power Supply		AC input ATX power supply 1. 250W power supply - Input: 115VAC~230VAC, 50/60Hz - Output (max.): 3.3V@12A, 5V@14A, 12V@25A, -12V@0.3A, +5Vsb@3A 2. 350W power supply (Build to Order) - Input: 115VAC~264VAC, 50/60Hz - Output (max.): 3.3V@14A, 5V@16A, 12V@29A, -12V@0.3A, +5Vsb@3A - Efficiency: Full load (100%) 87%, Typical load (50%) 90%, Light load (20%) 87%	
Watchdog Timer		Software Programmable support 1~255 sec. system reset	
Construction	IP Rating	IP66-rated front panel	
	Chassis Construction	Metal Housing	
	Mounting	Rack/Panel Mount	
	Color	Front Bezel : Cyan-blue (PSM 296C), Others: Black C	
	Cut-out dimensions (LxDxH) (mm)	391 x 324	447.8 x 267.2
	Dimensions (LxDxH) (mm)	408.4 x 341.4 x 119	469.8 x 289.2 x 120.8
Environmental	Operating Temperature	-20°C ~ 50°C (with SSD and up to TDP 65W processor) -20°C ~ 40°C (with HDD or add-on cards without fan)	
	Storage Temperature	-30°C ~ 60°C	
	Operating Humidity	5% ~95%, non-condensing	
	Vibration	5~17Hz, 0.1 double amplitude displacement 17~640Hz 1.5G acceleration peak to peak	
	Shock	10G acceleration part to part (11ms)	

PPC-F Series



LCD Size		5.7"	8"	10.4"	12"
Model		PPC-F06B-BT	PPC-F08B-BT	PPC-F10B-BT	PPC-F12B-BT
Display	LCD Size	5.7" (4:3)	8" (4:3)	10.4"	12" (4:3)
	Max. Resolution	640 (W) x 480 (H)	800 (W) x 600 (H)	800 (W) x 600 (H)	1024 (W) x 768 (H)
	Brightness (cd/m ²)	550	500	400	600
	Contrast Ratio	800 : 1	500 : 1	700 : 1	700 : 1
	LCD Color	262K	16.2M	16.2M	16.2M
	Pixel Pitch (mm) (HxV)	0.18 x 0.18	0.2025 x 0.0675	0.264 x 0.264	0.24 x 0.24
	Viewing Angle (V/H)	160° / 140°	140° / 120°	160° / 140°	160° / 140°
	Backlight MTBF (hrs)	50000	50000	30000	50000
Touch	TouchScreen	4-wire resistive type flat touch window, 3H	5-wire resistive type flat touchscreen, 3H	5-wire resistive type flat touchscreen, 3H	5-wire resistive single touch window, 3H (Anti-glare Surface) 10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)
	Touch Controller	PenMount DMC9000	PenMount DMC9000	PenMount DMC9000	Penmount DMC 9000 EETI EXC3188
Motherboard	CPU	Intel® Celeron® processor N2807,dual-core, 1.58GHz	Intel® Celeron® J1900 on-board SoC, quad-core, 2GHz	Intel® Celeron® J1900 on-board SoC, quad-core, 2GHz	Intel® Celeron® quad-core J1900 SoC, 2GHz
	Chipset	N/A	N/A	N/A	N/A
	RAM	2GB DDR3L 1600MHz on-board RAM (system max. 4GB by MOQ=300pcs)	1 x 204-pin DDR3L SO-DIMM slot (max. 8GB)	1 x 204-pin DDR3L SO-DIMM slot (max. 8GB)	2 x 204-pin 1066/1333 MHz DDR3L SO-DIMM supported (max. 8GB)
	Ethernet	2 x RTL 8111HN	2 x RTL 8111HN	2 x RTL 8111HN	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller
	Audio Codec	Realtek ALC662 HD codec	Realtek ALC892 HD codec	Realtek ALC892 HD codec	Realtek ALC662 HD codec
I/O Ports and Switches		1 x RJ-45 LAN port 1 x RS-232 COM port (DB-9 connector) (RI/5V/12V) 1 x RS-422/485 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x 9 V~36 V DC lockable jack (2-pin) 1 x Audio port (line-out) 1 x Power switch 1 x Reset button 1 x AT/ATX switch	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	1 x RS-232 COM port (RJ-45 connector) 1 x RS-232/422/485 COM port (DB-9 connector) (RI/5V/12V) 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 2 x GbE LAN 1 x Power switch 1 x Reset button 1 x AT/ATX switch 1 x Audio port (line-out) 1 x 9 V~30 V lockable power jack	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Power switch
Drive Bay	HDD Driver Bay	N/A	N/A	1 x 2.5" HDD bay	1 x 2.5" HDD bay
	SSD	mSATA			
Expansion Slot		1 Full Size PCIe Mini Slot (with mSATA, PCIe/USB Signal)	1 x Full-size PCIe Mini slot (with mSATA/PCIe/USB signal) 1 x Half-size PCIe Mini slot for Wi-Fi modules		1 x Full-size PCIe Mini card slot 1 x Full-size PCIe Mini card slot colay mSATA
System Cooling		Fanless	Fanless	Fanless	Fanless
Environment	Operating Temperature	-10°C~50°C (14°F~122°F)			
	Storage Temperature	-20°C~60°C (-4°F~140°F)			

PPC-F Series



LCD Size		15”		17”		19”
Model		PPC-F15A-H81	PPC-F15B-BT	PPC-F17A-H81	PPC-F17B-BT	PPC-F19B-BT
Display	LCD Size	15" (4:3)	15" (4:3)	17"	17"	19"
	Max. Resolution	1024 (W) x 768 (H)		1280 (W) x 1024 (H)		
	Brightness (cd/m²)	450		350		
	Contrast Ratio	800 : 1		1000 : 1		
	LCD Color	16.2M		16.7M		
	Pixel Pitch (mm) (HxV)	0.297 x 0.297		0.26 x 0.26	0.26 x 0.26	0.294 x 0.294
	Viewing Angle (V/H)	160° / 150°		170° / 160°	170° / 160°	170° / 160°
	Backlight MTBF (hrs)	70000		50000		
Touch	Touchscreen	5-wire resistive single touch window, 3H (Anti-glare Surface) 10-point Projected capacitive touch window, 6H (Anti-UV, Anti-glare Surface)				
	Touch Controller	Penmount DMC 9000 EETI EXC3188				
Motherboard	CPU	4th generation Intel® Core™ i7/ i5, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz	4th generation Intel® Core™ i7/ i5, Pentium® and Celeron® processor, up to TDP 65W CPU	Intel® Celeron® quad-core J1900 SoC, 2GHz	Intel® Celeron® processor J1900 (2M cache, up to 2.42 GHz)
	Chipset	N/A	Intel® H81	Intel® H81	N/A	N/A
	RAM	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	2 x 204-pin 1066/1333 MHz DDR3L SO-DIMM supported (max. 8GB)	2 x 204-pin DDR3 SO-DIMM slots (max. 16GB)	2 x 204-pin 1066/1333 DDR3L SO-DIMM supported (max. 8GB)	2 x 204-pin DDR3L SO-DIMM slot (max. 8GB), pre-installed with 2GB
	Ethernet	1 x PCIe GbE by Intel® I210 controller 1 x PCIe GbE by Intel® I211 controller				
	Audio Codec	Realtek ALC662 HD codec				
I/O Ports and Switches		2 x RJ-45 LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out 1 x Power switch	2 x RJ-45 : LAN Port 2 x USB 3.2 Gen 1 (5Gb/s) 4 x USB 2.0 1 x HDMI output 4 x RS-232 1 x RS-422/485 1 x MIC-in 1 x Line-out 1 x VGA output 1 x AC/DC power plug (DC model is by build to order manufacturing) 1 x AT/ATX switch 1 x Clear CMOS 1 x Reset button 1 x Power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x DC jack (4-pin) 1 x Terminal block 1 x Microphone & speaker 1 x power switch	2 x RJ-45 LAN port 2 x USB 3.2 Gen 1 (5Gb/s) 2 x USB 2.0 1 x HDMI 2 x RS-232 1 x RS-232/422/485 1 x VGA 1 x 9 V~36 V DC jack (4-pin) 1 x 9 V~36 V DC terminal block 1 x Line-out (PPC-F15B & PPC-F17B & PPC-F19B only) 1 x Power switch
Drive Bay	HDD Driver Bay	1 x 2.5" HDD bay		1 x 2.5" SATA HDD bay with anti-shook		
	SSD	mSATA				
Expansion Slot		1 x Full-size PCIe Mini card 1 x Full-size PCIe Mini card co-lay mSATA				
System Cooling		Active fan	Fanless	Active fan	Fanless	Fanless
Environment	Operating Temperature	-10°C~50°C (14°F~122°F)				
	Storage Temperature	-20°C~60°C (-4°F~140°F)				

» Vertical Market PPC (Marine Series)



Model		S19A-QM87	S24A-QM87	S19M	S24M
Display	LCD Size	19"	24"	19"	24"
	Max. Resolution	1280 x 1024	1920 x 1080	1280 x 1024	1920 x 1080
	Brightness (cd/m ²)	300	300	300	300
	Contrast Ratio	2000:1	5000:1	2000:1	5000:1
	LCD Color	16.7M	16.7M	16.7M	16.7M
	Pixel Pitch (mm) (HxV)	0.294 x 0.294	276.75 x 276.75	0.294 x 0.294	276.75 x 276.75
	Viewing Angle (V/H)	178° / 178°	178° / 178°	178° / 178°	178° / 178°
	Backlight MTBF (hrs)	50000	50000	50000	50000
Touch	Touchscreen	Projected capacitive touch with USB interface, 6H			
Motherboard	CPU	Intel® 22nm 4th Generation Mobile Core™ i5-4400E 2.7GHz processor		-	-
	Chipset	Intel® QM87	Intel® QM87	-	-
	RAM	Two 204-pin 1600/1333 MHz dual-channel DDR3 SDRAM support up to 16GB		-	-
	Ethernet	GbE1: Intel® I217LM with Intel® AMT 9.0 support GbE2: Intel® I210-AT PCIe controller		-	-
	Audio Codec	N/A	N/A	-	-
I/O Ports and Switches		3 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s) 1 x VGA 1 x DVI-D 1 x HDMI 1 x PS/2 (through Y-type cable supporting KB/MS) 2 x CAN-bus 2.0B, 3-pin terminal block (2.5KV isolation protection) 1 x DB-9 RS-232 (non-isolated), 4 x DB-9 RS-232/422/485 (2.5KV isolation protection) 2 x RJ-45 GbE LAN with teaming support (2KV isolation protection) 1 x Mic-in 1 x Line-out 1 x Line-in 2 x Antenna SMA hole (reserved) 1 x Isolated 9V ~ 36V DC 3-pin terminal block 1 x Power button		• DVI-D Signal Input: 2 x DVI (24-pin, female) • VGA Signal Input: 2 x D-sub (15-pin, female) • VGA Signal Output: 1 x D-sub (15-pin, female) - Clone of VGA IN* • Composite Video Input: 1 x BNC connector (female) • Composite Video Output: 1 x BNC connector (female) • RS-232/422/485 for remote control (Non-isolated) • Touchscreen: 1 x USB Type A connector (female) • Ethernet: 1 x RJ-45 connector for remote control • Isolated AC Power Inlet: 100V~240V AC • Isolated DC Terminal Block: 18V~36V DC • 1 x Buzzer	
Drive Bay	HDD Driver Bay	-	-	-	-
	SSD	2 x SSD Bay & 1 x CFast	2 x SSD Bay & 1 x CFast	-	-
Expansion Slot		2 x PCIe Mini card	2 x PCIe Mini card	-	-
System Cooling		Fanless	Fanless	Fanless	Fanless
Environment	Operating Temperature	-15°C to 55°C (5% to 95% RH)			
	Storage Temperature	-20°C to 60°C			
IP Rating		Front IP 66 / Rear IP 22			

UPC-F12C-ULT3



reddot award 2018
winner

Model		UPC-F12CM-ULT3		UPC-F12C-ULT3	
Display	LCD Display	12.1"			
	Max Resolution	1024(W) x 768(H)			
	Brightness (cd/m²)	600			
	Contrast Ratio	700:1			
	LCD Color	16.2M			
	Pixel Pitch (mm)	0.24(H) x 0.24(V)			
	Viewing Angle (H-V)	160° / 140°			
	Backlight MTBF (Hrs)	50,000			
Motherboard	CPU	6th generation Intel® Core™ i5 and Celeron® ULT processor			
	RAM	1 x 260-pin 2133/1867 MHz single-channel DDR4 SO-DIMMs			
	Ethernet	PCIe GbE by Intel® I211 controller			
Touchscreen		P-CAP / Resistive Touch			
Input Interfaces	I/O Ports & Switch	M12 Type: 1 x 8-pin M12 connector for RS-232 1 x 8-pin M12 connector for RS-232/422/485 1 x 8-pin M12 connector for GbE LAN 2 x 8-pin M12 connector for two USB 2.0 1 x 5-pin M12 connector for DC jack (12V~36V DC)		Standard Type: 1 x DC jack (12V-36V DC) 1 x DC-in terminal block (12V-36V DC) 1 x HDMI 1 x VGA 1 x RS-232 (COM1 RJ-45) 1 x RS-232/422/485 (COM2 RJ-45) 2 x LAN 2 x USB 2.0 2 x USB 3.2 Gen 1 (5Gb/s)	
Expansion		1 x Full-size/half-size PCIe Mini card slot (PCIe x1 and USB 2.0 signals)			
Connectivity	Wi-Fi & BT	802.11 a/b/g/n/ac + Bluetooth v4.0			
	RFID	Reserved RFID antenna area (optional)			
Storage		1 x 2.5" HDD bay			
		1 x M.2 (B key 2242 with USB 2.0 and SATA signal)			
Physical	Construction	Aluminum die-casting			
	Mounting	VESA 100mm x 100mm			
	Net/Gross Weight (kg)	4.95 kg / 7.62 kg		5.02 kg / 7.40 kg	
	Dimensions (W x L x D) (mm)	316 x 279 x 67			
Environment	Operating Temperature (with air flow)	-20°C ~ 60°C (without heater solution)			
	Storage Temperature	-20°C ~ 70°C			
	IP Level	Full IP65 or Full IP66 (with M12 connectors)			
	Safety	CE / FCC			
Power	Power Requirement	Power 1: 12V ~ 36V (terminal block)			
		Power 2: 12V ~ 36V (DC jack)			

RISC Based Panel PC



Model		IOVU-210AD-RK39-R10-TW	IOVU-207AR-RK39-R10-TW	IOVU-210AR-RK39-R10-TW
Chassis	Color	white		
	Dimensions (WxHxD)	293 x 209.5 x 44.5 (mm)	210.7 x 154.7 x 29.6 (mm)	282.5 x 174.3 x 26.8 (mm)
	System Fan	Fanless		
	Chassis Construction	PC + ABS plastic front, Metal rear	PC + ABS plastic front, Metal rear	PC + ABS plastic
Display	Size	10"	7"	10"
	Resolution	800(RGB) x 1280	720 RGB x 1280	800(RGB) x 1280
	Brightness (cd/m²)	350 cd/m² (typ.)	300 cd/m² (typ.)	350 cd/m² (typ.)
	Pixel Pitch (mm)	0.0564(H) x 0.1692(V)	0.1239 (H) x 0.119 (V)	0.0564(H) x 0.1692(V)
	Viewing Angle (H/V)	85/85/85/85 Deg.	70/70/70/70 Deg.	85/85/85/85 Deg.
	Touchscreen	Projected capacitive		
Motherboard	CPU	Rockchip RK3399 (Dual-core Cortex-A72 up to 1.8GHz + Quad-core Cortex-A53 up to 1.5GHz)		
	System Memory	On-board 2 GB LPDDR3-1866		
Storage	SD Card	1 x Micro SD Slot		
	Flash	On-board 16 GB eMMC		
Communication	WLAN	On-board Wi-Fi 802.11a/b/g/n/ac (2T2R)		
	Bluetooth	Bluetooth 4.1		
	RFID	13.56 MHz ISO4443 A/B, read-write capable (NXP PN553)	N/A	13.56 MHz ISO4443 A/B, read-write capable (NXP PN553)
I/O Interfaces	I/O interface	1 x 10/100/1000Mbps RJ45 LAN w/ POE 1 x RS-232/422/485 1 x RS-232 1 x DIO 4pin (2 in / 2 out) 1 x DC jack 1 x DC in terminal block	1 x 10/100/1000Mbps RJ45 LAN 2 pin terminal block for SOS key 1 x DC jack	1 x RS-232 (4 pin wafer connector) 1 x RS-232/422/485 (4 pin terminal block) 1 x 4 bit (2 in, 2 out) - (terminal block) 2 x 2 bit (1 in, 1 out) - (4 pin wafer connector) 3 x I²C (4 pin wafer connector) 1 x 10/100/1000Mbps RJ45 LAN w/ POE 1 x 10/100/1000Mbps RJ45 LAN 1 x DC jack
	USB 3.2 Gen 1	1 x Type A 1 x Type C OTG	1 x Type A	1 x Type A
	USB 2.0	2 x Type A	1 x Type A	1 x Type A
	Others	2 x USB 2.0 (internal)	1 x Type C OTG (Internal) 2 x UART w/ 3V (internal) 2 x USB 2.0 (internal)	1 x Type C OTG (Internal) 2 x UART w/ 3V (internal) 2 x USB 2.0 (internal)
Multimedia	Speaker / Mic	2 x Mic 1 x 2W speaker	1 x Mic 1 x 2W Speake	1 x Mic 2 x 1.5W Speaker
	Camera	5-megapixel	5-megapixel	5-megapixel
LED Indicator & Button	Indicator	1 x Power LED 1 x WiFi LED 1 x BT LED	1 x Power (green) 1 x Mail (blue) 1 x Phone (green) 1 x Exclamation Mark (red)	1 x Power LED 1 x RFID LED 3 x Key pad LED (Volume / SOS)
	Button	1 x Reset Button	1 x Reset Button 1 x SOS Key (with red bar) 2 x Function Key for AP operation (with green bar)	1 x Reset Button 1 x Volume up 1 x Volume down 1 x SOS Button
Power	Power Input	12V DC input (range : 9V ~ 30V) PoE: IEEE 802.3 at standard (Power Device)	12V DC input (range : 9V ~ 30V)	12V DC input (range : 9V ~ 30V) PoE: IEEE 802.3 at standard (Power Device)
	Consumption	12V @ 1.2A	12V @ 1.05A	12V @ 1.1A
Reliability	Mounting	VESA Mount 75mmx75mm	VESA Mount 75mmx75mm	Panel mount, In wall cage VESA 110mmx100mm
	Operating Temperature	-10°C ~ 50°C with air flow		
	Storage Temperature	-20°C ~ 60°C		
	Humidity	10% ~ 90%, non-condensing		
	Safety/EMC	CE/FCC / Class A compliant	CE/FCC / Class B compliant	CE/FCC / Class B compliant
OS	Supported OS	Android 7.1	Android 7.1 / Linux	Android 7.1 / Linux

» Heavy Industrial Monitor



Model		DM-F65A	DM-F08A	DM-F12A	DM-F15A	DM-FW15A
LCD	LCD Display	6.5" (4:3)	8" (4:3)	12.1" (4:3)	15" (4:3)	15.6" (16:9)
	Max. Resolution	640 (W) x 480 (H)	800 x 600	1024 (W) x 768 (H)	1024 (W) x 768 (H)	1366 (W) x768 (H)
	Brightness (cd/m²)	800	500	600	450	400
	Contrast Ratio	600:1	500:1	700 : 1	800 : 1	500:1
	LCD Color	16.2M	262K	16.2M	16.2M	16.2M
	Pixel Pitch (mm)	0.207 x 0.207	0.0675 x 0.2025	0.24 x 0.24	0.29 x 0.29	0.252 x 0.252
	Viewing Angle (H-V)	160° / 140°	140°/120°	160° /140°	160° / 150°	170° / 160°
	Backlight MTBF (Hrs)	50000	50000	50000	70000	50000
Touchscreen & Controller		5-wire resistive single touch window/ Penmount 6000		5-wire resistive single touch window/ Penmount 6000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)		
I/O Ports		1 x VGA (DB-15) 1 x DVI 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 12V DC jack		1 x VGA (DB-15) 1 x HDMI 1 x DisplayPort 1.1 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 9V-36V DC jack 1 x 9V-36V terminal block		
OSD	OSD Button	5-key membrane OSD keypad		7-key membrane OSD keypad		
	Smart OSD Software	Smart OSD Software				
Physical	Construction Material	Aluminum front frame and sheet metal rear cover				
	Mounting	Panel Mount/ Rack Mount 75 x 75 VESA Mount		Panel Mount/ Rack Mount 100 x 100 VESA Mount		
	Enclosure Color	Black C				
	Dimensions (mm)	191.8 x 154.36 x 42.88	222.2 x 182.2 x 42.7	262.2 x 322.2 x 40.5	303 x 378.5 x 43.2	400.1 x 253.3 x 52.9
	Cutout Dimensions (mm)	180 x 140	206 x 154	244.8 x 304.8	285.6 x 361.1	379.1 x 232.3
	Weight (kg) Net/ Gross	1.1 / 2.6	1.33 / 4.5	2.7 / 4.9	3.5 / 5.5	4 / 6.5
Environment	Operating Temperature (with air flow)	-20°C ~ 60°C (with air flow)				
	Storage Temperature	-20°C ~ 70°C				
	Humidity	10% to 95% (non-condensing)				
	IP Level	IP 65 compliant front panel				
	Safety and EMC	CE & FCC certified				
Power Input		12V DC		9V~36V DC		
Power consumption		12V @ 0.5A	12V @ 0.5A	9V @ 2.2A 36V @ 0.5A	9V @ 1.6A 36V @ 0.4A	9V @ 1.3 36V @ 0.33

» Heavy Industrial Monitor



Model		DM-F17A	DM-FW19A	DM-F19A	DM-F22A	DM-F24A
LCD	LCD Display	17" (5:4)	18.5" (16:9)	19" (5:4)	21.5" (16:9)	23.8" (16:9)
	Max. Resolution	1280 (W) x 1024 (H)	1366 (W) x 768 (H)	1280 (W) x 1024 (H)	1920 (W) x 1080 (H)	1920 (W) x 1080 (H)
	Brightness (cd/m²)	350	400	350	250	250
	Contrast Ratio	1000 : 1	1000 : 1	1000 : 1	1000 : 1	3000 : 1
	LCD Color	16.7M				
	Pixel Pitch (mm)	0.26 x 0.26	0.3 x 0.3	0.294 x 0.294	0.25 x 0.25	0.28 x 0.28
	Viewing Angle (H-V)	170° / 160°			170° / 160°	178° / 178°
	Backlight MTBF (Hrs)	50000			30000	30000
Touchscreen & Controller		5-wire resistive single touch window, 3H/Penmount 6000 (Anti-glare Surface) 10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)			10-point Projected capacitive touch window, 6H/EETI EXC3188 (Anti-UV, Anti-glare Surface)	
I/O Ports		1 x VGA (DB-15) 1 x DVI (F19A only) 1 x HDMI (F17A & FW19A only) 1 x DisplayPort 1.1 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 9V-36V DC jack 1 x 9V-36V terminal block			1 x VGA (DB-15) 1 x HDMI 1 x DisplayPort 1.1 1 x USB 2.0 (touch) 1 x RS-232 (reserved for resistive touch ATO) 1 x Lockable 9V-36V DC jack 1 x 9V-36V terminal block	
OSD	OSD Button	7-key membrane OSD keypad				
	Smart OSD Software	Smart OSD Software				
Physical	Construction Material	Aluminum front frame and sheet metal rear cover				
	Mounting	Panel Mount/ Rack Mount 100 x 100 VESA Mount			Panel Mount 100 x 100 VESA Mount	Panel Mount 100 x 100 VESA Mount
	Enclosure Color	Black C				
	Dimensions (mm)	341.4 x 408.4 x 49.3	468.8 x 288.2 x 48.9	372.4 x 447.4 x 49.57	358.4 x 550.4 x 49.1	382 x 600 x 49.4
	Cutout Dimensions (mm)	324 x 391	447.8 x 267.2	430 x 355	340 x 532	358.6 x 576.6
	Weight (kg) Net/Gross	4.4 / 7.1	5 / 8.1	5.4 / 8.4	6.3 / 9.6	7.6 / 10.9
Environment	Operating Temperature (with air flow)	-20°C ~ 60°C (with air flow)			-10°C ~ 50°C	-10°C ~ 50°C
	Storage Temperature	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 60°C	-20°C ~ 60°C
	Humidity	10% to 95% (non-condensing)				
	IP Level	IP 65 compliant front panel				
	Safety and EMC	CE & FCC certified				
Power input		9V~36V DC				
Power consumption		9V @ 2.6A 36V @ 0.6A	9V @ 1.33A 36V @ 0.35A	9V @ 3.3A 36V @ 0.8A	9V @ 2.5A 36V @ 0.6A	9V @ 3.4A 36V @ 0.8A

POC Series



Model		POC-17C-ULT3	POC-W24C-ULT3
LCD Specifications	LCD Size	17" (5:4)	24"
	Max. Resolution (W / H)	1280 x 1024	1920 x 1080
	Brightness (cd/m ²)	350	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M	16.7M colors (RGB 6-bit + HI_FRC)
	Pixel Pitch (H / V)	0.264 x 0.264 mm	0.2745 x 0.2745 mm
	Viewing Angle (H / V)	170° / 160°	178° / 178°
	Backlight MTBF (hrs)	30,000 (LED backlight)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI	EETI
	Surface Hardness	6H	6H
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U 7th Gen Intel® mobile ULT Kaby Lake on-board SoC (By project base)
	RAM	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max.32GB)	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)
	Storage	1 x mSATA (E-Window) 2 x 2.5" SATA 6Gb/s accessible HDD bay with RAID 0,1 (RAID function only for Core™ i5 and Core™ i7)	1 x mSATA (E-Window) 1 x 2.5" SATA 6Gb/s HDD/SDD bay
	Audio	2 x 2W speaker	2 x 3W speaker
	Camera & Microphone	2-megapixel CMOS front-facing camera with auto-focus and digital microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone
	I/O Port	1 x HDMI output 1 x 12~28V DC jack 1 x RS-232/422/485 1 x RJ-11 for 1D/2D barcode reader	2 x GbE LAN port 4 x USB 3.2 Gen 1 port 4 x USB 2.0 port (2 on the side)
	OSD Function	1 x LCD on/off 1 x Volume up 1 x Volume down 1 x Brightness up 1 x Brightness down 1 x Touch lock button for cleaning	Combinations: 1 x Lock/Unlock OSD 1 x Power on/off
	Expansion	1 x E-Window slot (Full-size PCIe Mini slot with PCIe / mSATA / USB)	1 x PCIe Mini reserved for E-Window expansion
	LED	1 x RFID indicator	1 x RFID indicator
	Wi-Fi & Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with BT V4.1 (M.2 2230 A-E key)	IEEE 802.11 a/b/g/n/ac 2T2R module with BT V4.1 (M.2 2230 A-E key)
Other Features	Auto-dimming	Yes	Yes
	Light Sensor	-	Ambient light sensor for panel brightness adjustment
Physical	Construction Material	ABS+PC plastic with anti-bacterial material pantone RAL 9016 (Apple white)	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 100/75	Wall, Stand and Arm VESA 100/75
	Weight (Net)	6.0 Kg	7.5 Kg
	Dimensions (LxWxH)	435 x 376 x 64.5 mm	594.6 x 379.6 x 60.68 mm
Environment	Operating Temperature	0°C~40°C	0°C~40°C
	Storage Temperature	-20°C~65°C	-20°C~60°C
	Humidity	10% to 95% (non-condensing)	10% to 95% (non-condensing)
	Vibration	1G	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP65	Front: IP65
	Thermal	Fanless	Fanless
Power	Power Input	19V DC input	19V DC input
	Power Adapter	150W medical power adapter	150W medical power adapter
Certification	EMC & Safety	CE, FCC Class B Part 18 IEC 60601-1: 2005+AMD1: 2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)	CE, FCC Class B Part 18 IEC 60601-1: 2005+AMD1: 2012 (Edition 3.1) IEC 60601-1-2: 2014 (Edition 4.0)

POCm Series



Model		POCm-W22C-ULT3	POCm-W24C-ULT3
LCD Specifications	LCD Size	21.5" (16:9)	23.8"
	Max. Resolution (W / H)	1920 x 1080	1920 x 1080
	Brightness (cd/m²)	250	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M colors (RGB 6-bit)	16.7M colors (RGB 6-bit)
	Pixel Pitch (H / V)	0.24825 x 0.24825 mm	0.2745 x 0.2745 mm
	Viewing Angle (H / V)	170° / 160°	178° / 178°
	Backlight MTBF (hrs)	30,000 (LED backlight)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI	EETI
	Surface Hardness	6H	6H
System	CPU Support	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U	6th Gen Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U / Celeron® 3855U
	LAN Controller	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)
	RAM	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 32GB)
	Storage	1 x 2.5" Accessible SATA HDD bay 2 x 2280 M key (PCIe x1/SATA) with RAID	1 x 2.5" Accessible SATA HDD bay 2 x 2280 M key (PCIe x1/SATA) with RAID
	Audio	2 x 2W speaker	2 x 2W speaker
	Camera & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone
	I/O Port	Bottom 1 x DC Jack 1 x Digital Mic 2 x HDMI output 2 x GbE LAN port 2 x RS-232/422/485 4 x USB 3.2 Gen 1 port	Side 1 x Mic in 1 x Audio out 2 x USB 2.0 port
	OSD Function	1 x System on/off 1 x Volume up 1 x Volume down	1 x Brightness up 1 x Brightness down 1 x LCD on/off and touch lock for cleaning
	Expansion	1 x Full-size/half-size PCIe Mini (PCIe+USB)	1 x Full-size/half-size PCIe Mini (PCIe+USB)
	LED	1 x RFID indicator 1 x Power indicator 3 x Battery indicator (color: blue/red)	1 x RFID indicator 1 x Power indicator 3 x Battery indicator (color: blue/red)
	Wi-Fi & Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with BT V4.2 (M.2 2230 A-E key)	IEEE 802.11 a/b/g/n/ac 2T2R module with BT V4.2 (M.2 2230 A-E key)
Physical	Construction Material	ABS+PC plastic with anti-bacterial material	ABS+PC plastic with anti-bacterial material
	Mounting	Wall, Stand and Arm VESA 75/100	Wall, Stand and Arm VESA 75/100
	Weight (Net / Gross)	7.07 kg without batteries / 8.43 kg with 3 batteries	8.18 kg without batteries / 9.53 kg with 3 batteries
	Dimensions (LxWxH)	543 x 350 x 71 mm	594.6 x 379.6 x 71 mm
Environment	Operating Temperature	0°C~40°C	0°C~40°C
	Storage Temperature	-20°C~60°C	-20°C~60°C
	Humidity	10% to 90% (non-condensing)	10% to 90% (non-condensing)
	Vibration	1G	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 10G peak acceleration (11ms duration)	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 10G peak acceleration (11ms duration)
	IP Level	Front: IP65, Back: IP32	Front: IP65, Back: IP32
	Thermal	Fanless	Fanless
Power	Power Input	19V DC input	19V DC input
	Power Adapter	150W medical power adapter	150W medical power adapter
	Battery	3 slots for Li-ion battery pack	3 slots for Li-ion battery pack
Certification	EMC & Safety	CE, FCC Class B Part 18 IEC 60601-1-2: 2014 (Edition 4.0) IEC 60601-1:2005+AMD1:2012 (Edition 3.1)	CE, FCC Class B Part 18 IEC 60601-1-2: 2014 (Edition 4.0) IEC 60601-1:2005+AMD1:2012 (Edition 3.1)

POCi Series



Model		POCi-W22C-ULT5	POCi-W24C-ULT5
LCD Specifications	LCD Size	21.5" (16:9)	23.8" (16:9)
	Max. Resolution (W / H)	1920 x 1080	1920 x 1080
	Brightness (cd/m²)	250	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M RGB 6-bit (Hi-FRC)	16.7M RGB 6-bit (Hi-FRC)
	Pixel Pitch (H / V)	0.24795 x 0.24795 mm	0.2745 x 0.2745 mm
	Viewing Angle (H / V)	178° / 178°	178° / 178°
	Backlight MTBF (hrs)	30,000 (LED backlight)	30,000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	Projected capacitive type with 10-point multi-touch
	Touch Controller	EETI (80H84)	EETI (80H84)
	Surface Hardness	6H	6H
	Coating	Chemical etching AG	Chemical etching AG
System	CPU Support	Intel® Core™ i7-8665UE (Whiskey Lake ULT platform) Intel® Core™ i5-8365UE (Whiskey Lake ULT platform)	Intel® Core™ i7-8665UE (Whiskey Lake ULT platform) Intel® Core™ i5-8365UE (Whiskey Lake ULT platform)
	LAN Controller	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)	1 x Intel® I211 Ethernet Controller 1 x Intel® I219 Ethernet Controller (AMT 12.x supported by i7/i5 SKUs)
	RAM	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 64GB)	Two 260-pin 2400/2133MHz dual-channel DDR4 SO-DIMM, 4GB pre-installed (system max. 64GB)
	Storage	1 x M.2 2242/60/80 M key (PCIe x4) 1 x 2.5" accessible SATA HDD/SSD bay	1 x M.2 2242/60/80 M key (PCIe x4) 1 x 2.5" accessible SATA HDD/SSD bay
	Audio	2 x 2W speaker	2 x 2W speaker
	I/O Port	Bottom 1 x DC jack 1 x HDMI 1.4 output 1 x Isolated 1.5kV RS-232 1 x Combo audio-out / mic-in 1 x Isolated Gigabit LAN (I211) 1 x Isolated Gigabit LAN (I219 supports Intel® vPro) 4 x USB 3.2 Gen 2 port	Side 2 x USB 2.0 port
	OSD Function	1 x Power on/off 1 x Reading light on/off 1 x Backlight brightness up	1 x Backlight brightness down 1 x Clean mode on/off 1 x DICOM mode app on/off (optional)
	Expansion	1 x PCIe x4	1 x PCIe x4
	LED	1 x RFID indicator (optional) 2 x LED reading light	1 x RFID indicator (optional) 2 x LED reading light
	Wi-Fi & Bluetooth	IEEE 802.11 ax 2T2R module (Wi-Fi 6 Module) with BT V5.0 (M.2 2230 A-E key)	IEEE 802.11 ax 2T2R module (Wi-Fi 6 Module) with BT V5.0 (M.2 2230 A-E key)
Physical	Construction Material	Front bezel: Aluminum die-casting Rear cover: ABS+PC plastic (chemical resistant)	Front bezel: Aluminum die-casting Rear cover: ABS+PC plastic (chemical resistant)
	Mounting	Wall, Stand and Arm VESA 75/100	Wall, Stand and Arm VESA 75/100
	Weight (Net)	6.9 kg	8.1 kg
	Dimensions (LxWxH)	507.5 x 335.5 x 64.5 mm	567 x 370.6 x 63.9 mm
Environment	Operating Temperature	0°C~40°C	0°C~40°C
	Storage Temperature	-20°C~60°C	-20°C~60°C
	Humidity	10% to 95% (non-condensing)	10% to 95% (non-condensing)
	Vibration	1G	1G
	Shock	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)	Operating shock: 5G peak acceleration (11ms duration) Non-operating shock: 15G peak acceleration (11ms duration)
	IP Level	Front: IP66	Front: IP66
	Thermal	Fanless	Fanless
Power	Power Input	19V DC input	19V DC input
	Power Adapter	150W medical power adapter	150W medical power adapter
	Battery	3S3P Li-ion battery pack, 11.1V, 7800mAh (optional)	3S3P Li-ion battery pack, 11.1V, 7800mAh (optional)
	Built-in Medical Power	150W, 85~264 VAC, medical power supply (optional)	150W, 85~264 VAC, medical power supply (optional)
Certification	EMC & Safety	CE, FCC Class B Part 18 EN 60601-1-2: 2015 (Edition 4.0) EN 60601-1:2006/A1:2013 (Edition 3.1)	CE, FCC Class B Part 18 EN 60601-1-2: 2015 (Edition 4.0) EN 60601-1:2006/A1:2013 (Edition 3.1)

HTB Series



Model		HTB-100-HM170	HTB-200-C236	HTB-300-XA
Chassis	Color	Silver + Grayish blue	White	White
	Dimension (LxWxH)	294 x 209 x 90.2 mm	140 x 276.7 x 171 mm	293 x 209 x 82 mm
	Thermal	Fanless	Smart Fan	Fanless
	Chassis Construction	Extruded aluminum alloy	Metal housing (SECC)	Metal housing (SECC)
Motherboard	CPU	Intel® Core™ i5-6442EQ 6M Cache, up to 2.70 GHz, 25W Intel® Core™ i7-6822EQ 8M Cache, up to 2.80 GHz, 25W	Intel® Xeon® E3-1268LV5, 35W TDP Intel® Core™ i5-7500T (Kaby Lake platform), 35W TDP	8-core ARM v8.2 64-bit CPU, 8MB L2 + 4MB L3
	GPU	-	-	NVIDIA Volta™ architecture with 512 NVIDIA CUDA cores and 64 Tensor cores; 11 TFLOPS (FP16) 22 TOPS (INT8)
	Chipset	Intel® Skylake HM170	Intel® C236 for Xeon	-
	System Memory	1 x 4 GB pre-installed (system max: 32GB) 2 x 260-pin DDR4 SO-DIMM	2 x SO-DIMM ECC & non-ECC unbuffered memory supported up to 64GB	32GB eMMC 5.1 Support NVMe SSD by M.2 interface 1 x SD card slot for data encryption
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA HDD/SSD bay	-
I/O Interfaces	USB	2 x USB 2.0 4 x USB 3.2 Gen 1	2 x USB 2.0 2 x USB 3.2 Gen 1	1 x USB 2.0 Type C (internal) UART debug port 1 x USB 2.0 Type A (internal) for storing encrypted AI model and programming internal flash 4 x USB 3.2 Gen1
	Ethernet	2 x RJ-45 PCIe GbE by Intel® I211 controller	Intel® I210 PCIe controller Intel® I219 LM Clarkville-V with Intel® AMT 11.0 support	-
	COM port	2 x RS-232 (DB-9, with 2.5 kV isolation) 2 x RS-232/422/485 (DB-9, with 2.5 kV isolation)	1 x RS-232/422/485	1 x RS-232/422/485
	Display	1 x VGA, 1 x HDMI 2.0, 1 x iDP (optional)	1 x HDMI 1.3a (Up to 1920 x 1200)	1 x HDMI (max. 3840 x 2160 @ 60Hz) 1 x DP port (max. 3840 x 2160 @ 60Hz)
	Resolution	VGA: Up to 1920 x 1200@60Hz HDMI 2.0: Up to 4096 x 2160@60Hz	-	-
	Audio	Realtek ALC662, 5.1-channel High Definition Audio (HDA) 1 x Line-in, 1 x Line out, 1 x Mic-in	-	1 x 3W speaker
	Wireless	1 x 802.11a/b/g/n/ac 2T2R (optional)	-	-
	Others	-	1 x Power button 1 x Reset switch 1 x AT/ATX switch	1 x Power Button (RGB color LED)
Expansions	PCIe	1 x PCIe x16	1 x PCIe 3.0 x4 slot 1 x PCIe 3.0 x16 slot	1 x PCIe 3.0 x8 slot
	PCIe Mini	1 x Half-size PCIe Mini 1 x Full-size PCIe Mini (supports mSATA, colay with SATA)	1 x Half-size PCIe mini slot	1 x M.2 M key 2242/60/80 for SSD 1 x M.2 E key for Wi-Fi & Bluetooth
	M.2	1 x 1630/2230/3030 A-E key (PCIe x2/USB 2.0)	-	1 x Modularized high speed ground plane header (SSD/ SDI input/ HDMI input)
	Acceleration Card (Optional)	-	NVIDIA Tesla P4 (50W/75W) NVIDIA Tesla T4 (75W) Mustang F100 (<60W) Mustang V100 (<30W)	-
	Security	-	-	TPM 2.0
Power	Power Input	12~28V DC	19V DC	100~240 VAC
	Power Consumption	19V@4.4A (Intel® Core™ i7-6822EQ with 4 GB memory)	-	-
	Adapter	Adapter Power; Vin: 90~264VAC; Vout: 19VDC; 150W	100V~240V AC input, 19V DC output, 180W	65W medical adapter
Reliability	Mounting	Wall mounting	-	-
	Operating Temperature	0°C~40°C with air flow (SSD)	0°C~35°C	0~40 °C
	Operating Humidity	10%~95% (non-condensing)	10%~95% (non-condensing)	10%~95% (non-condensing)
	Storage Temperature	-40°C~70°C with air flow (SSD)	-20°C~60°C	-
	Storage Humidity	10% ~ 90% (non-condensing)	-	-
	Operating Shock	Half-sine wave shock 5G; 11ms; 100 shocks per axis	Half-sine wave shock 5G, 11ms, 100 shocks per axis	Half-sine wave shock 5G, 11ms, 100 shocks per axis
	Operation Vibration	MIL-STD-810G 514.6 C-1 (with SSD)	MIL-STD-810G 514.6C-1 (with SSD)	MIL-STD-810G 514.6C-1 (with SSD)
Certification	Weight (Net / Gross)	2.2 kg / 3.0 kg	2.8 kg	3.05 kg
	Safety / EMC	CE IEC 62304 IEC 60601-1 V3.1 IEC 60601-1-2 V4.0 ISO 14971:2007 FCC class B part 18	-	IEC 60601-1-2: 2014 (Edition 4.0) IEC 60601-1:2005+AMD1:2012 (Edition 3.1)
OS	Supported OS	Microsoft® Windows 8, Microsoft® Embedded Standard 7	Windows®10, Linux®	Linux for Jetson AGX Xavier
	File System	-	-	Ubuntu 18.04, Kernel version: 4.9

» AUPS Module



Model		AUPS-A10	AUPS-A20	AUPS-B10	AUPS-B20
VESA Type		VESA 75	VESA 75	VESA 75 and 100	VESA 75 and 100
Input Data	Input voltage Uinated/range	DC +12V	DC +9V~+36V	DC +12V	DC +9V~+36V
	Input current rated	1. Adapter is 12V-6A (Load is 60W) 2. Battery is 6V-12A (Load is 60W)		1. Adapter is 12V-9A (Load is 100W) 2. Battery is 12V-9A (Load is 100W)	
	Standby power consumption	0.3A (0.2A if Network Management disabled)			
	Operation with charging current	500mA			
	Operation with charging power consumption	6W		10W	
	Charging time with system ON/ OFF	8hrs / 2hrs (Battery empty)			
Output Data	Output voltage for normal operation	DC +12V +/-5%			
	Output voltage for battery operation (approx).	6~8.4V DC6 V (exhaustive discharge protection)		12~16.8V DC12 V (exhaustive discharge protection)	
	Output current	0A~5A		0A~8.3A	
	Efficiency (nominal operation) / power loss at Vin=12V, Iout=80% of full loading	89%	93%	95%	94%
Protection	Short-circuit protection	Yes			
	Exhaustive discharge protection	1. Battery low is 10% of battery capacity 2. Shutdown 5% of battery capacity (Default) 3. The end of battery discharge voltage is 6V			
	EMC / Safety certification	CE, FCC			
Monitoring	Ethernet interface	Web-based, specification 10/100Mbps with RJ-45 connection, Cat. 5 cable			
	USB interface	PC-capable, specification 2.0 with full speed, i.e. 2 Mbit/s. Standard 4-core shielded cable, USB Series "mini B" connector to DC-UPS			
Physical	Dimensions (LxWxH)	152mm x 96mm x 28mm		174mm x 147mm x 35mm	
	Weight	1.2 kg		1.8 kg	
LED Indicator	Green	DC power input			
	Yellow	Battery charging			
	Orange	Bettery discharging			
Environment	Operating Tem.	0°C~40°C			
	Storage Tem.	-20°C~50°C			

Note1: Connecting DC input constantly is recommended. Battery will be drained after 14 hours.

Note2: System power consumption + AUPS charging power consumption = Total watts of power source

» UPS Modules and Main Buffering Time



31603-000072-RS 31603-000073-RS

AFOLUX PPC	AUPS-A10	AUPS-A20	AUPS-B10	AUPS-B20
Under 50W solution				
AFL3-W07A-BT (20W)	110min	110min	220min	220min
AFL3-08A-BT (30W)	75min	75min	150min	150min
AFL3-W10A-BT (33W)	70min	70min	140min	140min
AFL3-12A-BT (42W)	55min	55min	110min	110min
AFL3-W15A-BT (50W)	45min	45min	90min	90min
AFL3-W19A-AL (40W)	55min	55min	110min	110min
50W ~ 100W solution				
AFL3-12C-ULT3 (58W)	-	-	75min	75min
AFL3-W15B-H81 (72W)	-	-	60min	60min
AFL3-W15C-ULT3 (68W)	-	-	65min	65min
AFL3-W19C-ULT3 (63W)	-	-	70min	70min
AFL3-W22C-ULT3 (65W)	-	-	70min	70min

» Battery Module

Model	AUPS-A10	AUPS-A20	AUPS-B10	AUPS-B20
Battery Model Name	31603-000072-RS		31603-000073-RS	
Battery type	Li-Ion 2S2P 7.26V		Li-Ion 4S2P 14.52V	
Battery capacity	7.26V 5200 mAh		14.52V, 5200 mAh	
Maximum charge voltage	8.4V		16.8V	
The end of discharging voltage	5.5V		11V	
Recommended charging current (max.)	2.55A		2.55A	
System continuous discharging current (max.)	7.5A		7.5A	
The end of charge condition	255mA / 1Min		255mA / 1Min	
Discharge protection	Over current protection			
Charge protection	Over current protection			
Ambient temperature	0°C~45°C			
Storage temperatur	-20°C~65°C			
Self-discharge rate	340uA~440uA			
Dimensions (LxWxH)	139mm x 47mm x 26mm		165mm x 76mm x 26mm	
Weight	244g		466g	
Cycle life	300 charge / discharge cycles			
Backup 60W / 10Min 100W / 10Min	50W / 10Min		100W / 10Min	
Safety class	CE, FCC, UN38.3, UL			

PEMUX-XEW1



Form Factor	PEMUX Full-size CPU card (12 layers)
CPU	LGA2066 socket supports Intel® Xeon W processor
Chipset	Intel® C422
Memory	Four 288-pin Dual-Channel DDR4 ECC RDIMM/LRDIMM supported up to 256GB
BIOS	UEFI BIOS
Super I/O	Fintek F81216D
EC	iWDD
Display Output	1 x IPMI VGA display
Ethernet	LAN1: 1 GbE NIC: Intel® i210-AT with NCSI support LAN2: 10 GbE NIC: Aquantia AQC107
External I/O Interface	2 x USB 2.0 4 x USB 3.2 Gen 1 (5Gb/s)
Internal I/O Interface	1 x M.2 2280 1 x USB DOM header 2 x mini SAS 8643 (for 8 x SATA 6GB/s) 2 x RS-232 by pin header 2 x USB 3.2 Gen 1 (5Gb/s) pin header

Front Panel	1 x Front Panel (Power LED, HDD LED, Speaker, Power Button, Reset Button)
Audio	2 x 5-pin pin header
TPM	2 x 10-pin pin header
SMBus	1 x SMBus to backplane
Expansion	56-Lane PCIe signal via golden finger
Watchdog Timer	software Programmable support 1~255 sec. System reset
Fan Connector	1 x 4-pin Smart fan connector (CPU fan) 2 x 4-pin Smart fan connector (System CPU fan)
Power Supply	5V/12V, AT/ATX support
Operating Temperature	-20°C ~ 40°C
Operating Humidity	5% ~ 95%, non-condensing
Dimensions	338.58 mm x 150.5 mm
Weight	700g

PEMUX Backplane

Accelerate to The Future

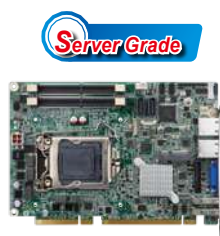
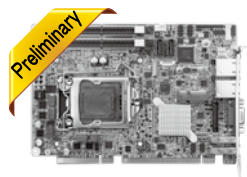
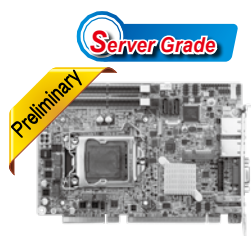
Server grade backplane accommodates multiple PCIe x8 and PCIe x4 add-on cards. It is specially designed for intensive AI computing applications such as deep learning and inference engine that requires more numbers of PCIe slot for accelerator cards. Given the multiple PCIe slots support, it provides a more efficiency solution for end-users.



Model Name		PEMUX-DB-10S1	PEMUX-DB-8S1
Total Slots		11	9
PCIe Lanes	x16		2 (Gen 3.0)
	x8	4 (Gen 3.0)	
	x4	6 (Gen 3.0)	6 (Gen 3.0)
	x1		
PSU type		24+8pin ATX	24+8pin ATX
Chsaais Option		RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G

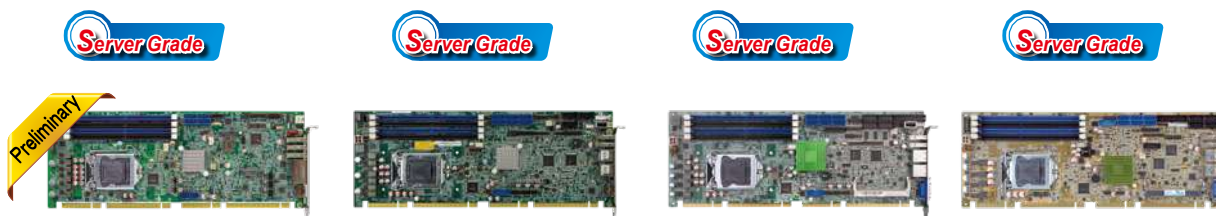
 PAC series wall-mount chassis  4U rack-mount chassis

PICMG 1.3



Model Name	HPCIE-W480	HPCIE-Q470	HPCIE-C236	HPCIE-Q170
CPU Socket	LGA1200	LGA1200	LGA 1151	LGA 1151
CPU Type	10th generation Intel® Xeon® W, Core™ i9/i7/i5/i3 processor	10th generation Intel® Core™ i9/i7/i5/i3/ Pentium® and Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® W480E	Intel® Q470E	Intel® C236	Intel® Q170
Memory	2 x 260-pin 2933 MHz dual-channel DDR4 SDRAM SO-DIMMs (ECC&non-ECC support) (system Max. 64 GB)	2 x 260-pin 2933 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	Two 260-pin 1866/2133 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	Two 260-pin 1866/2133 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)
Display Interface	Triple independent display 1 x HDMI 1 x USB-C	Triple independent display 1 x HDMI 1 x USB-C	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211-AT Ethernet controller	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211-AT Ethernet controller
iRIS Remote Management Module	N/A			
I/O Interface	1 x 422/485 (RS-485 support AFC) 1 x RS-232 3 x USB 3.2 Gen2 4 x USB 2.0	1 x 422/485 (RS-485 support AFC) 1 x RS-232 3 x USB 3.2 Gen2 4 x USB 2.0	1 x 6-pin wafer for KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x USB 2.0	1 x 6-pin wafer for KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x USB 2.0
Storage Interface	2 x SATA 6G/s (RAID 0/1 supported) 1 x M.2 (M Key)	2 x SATA 6G/s (RAID 0/1 supported) 1 x M.2 (M Key)	1 x mSATA (SATA & USB signal) 2 x SATA 6Gb/s (RAID 0/1 supported)	1 x mSATA (SATA & USB signal) 2 x SATA 6Gb/s (RAID 0/1 supported)
Audio	Supports by IEI AC-KIT-888S-R10 audio kit			
Digital I/O	8-bit programmable digital I/O			
Power Consumption	TBD	TBD	5V@0.13A, 12V@7.89A, 3.3V@0.10A, 5VSB@0.20A (Intel® Xeon® E3-1275 v5 3.60 GHz with two 16 GB 2133 MHz DDR4 memory)	5V@0.15A, 12V@8.39A, 3.3V@0.11A, 5VSB@0.21A (Intel® Core™ i7-6700K 4.0GHz with two 16 GB 2133 MHz DDR4 memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset			
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			
Expansion Slot	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x M.2 (A Key) 1 x M.2 (M Key)	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x M.2 (A Key) 1 x M.2 (M Key)	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x Full/Half-size PCIe Mini card slot (supports mSATA)	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 1 x Full/Half-size PCIe Mini card slot (supports mSATA)
CPU Cooler	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11

PICMG 1.3



Model	SPCIE-W480	SPCIE-C246	SPCIE-C236	SPCIE-C2260-i2
CPU Socket	LGA1200	LGA1151	LGA1151	LGA 1150
CPU Type	10th generation Intel® Xeon® W, Core™ i9/i7/i5/i3 processor	Intel® Xeon® E, 8th/9th generation Core™ i9/i7/i5/i3, Pentium® or Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor
Chipset	Intel® W480E	Intel® C246	Intel® C236	Intel® C226
Memory	Four 288-pin 2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs (ECC&non-ECC support) (system Max. 128 GB)	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC	Four 288-pin 1866/2133 MHz Dual-Channel DDR4 ECC & non-ECC unbuffered DIMM supported up to 64GB	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)
Display Interface	Triple independent display 1 x HDMI 1 x Internal 180° Type-C DP	Dual display supported 1 x HDMI 1 x DP	Triple display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support
iRIS Remote Management Module	N/A		1 x iRIS-2400 slot (Optional)	1 x iRIS-2400 slot
I/O Interface	4 x USB 3.2 Gen2 2 x USB 3.2 Gen1 1 x KB/MS 2 x RS-232 2 x RS-422/485 (RS485 support AFC) 6 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x RS-422/485 3 x RS-232 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 2 x RS-232 2 x RS-232/422/485 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 4 x RS-232 4 x USB 3.2 Gen 1 8 x USB 2.0
Storage Interface	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (B Key) 1 x M.2 (M Key)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
Audio	Supports by IEI AC-KIT-888S-R10 audio kit			
Digital I/O	8-bit programmable digital I/O			
Power Consumption	TBD	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (4.0 GHz Intel® Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)	5V@3.22A, 12V@6.81A, 3.3V@1.21A, 5VSB@0.18A (Intel® Xeon® E3-1275 v5 3.60 GHz CPU with 64GB (four 16GB) 2133 MHz DDR4 memory)	5V@3.55A, 12V@0.37A, Vcore_12V@7.61A, 3.3V@1.55A, 5VSB@0.13A (Intel® E3-1240 v3 3.4GHz CPU with 16 GB (four 4GB) 1333 MHz DDR3 memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset			
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			
Expansion Slot	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 4 x PCI signal via golden finger 1 x M.2 (A Key) 1 x M.2 (B Key) 1 x M.2 (M Key)	1 x M.2 M key 16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 4 x PCI signal via golden finger	1 x Full-size PCIe Mini card slot (support mSATA) 16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 4 x PCI signal via golden finger	1 x Full-size PCIe Mini card slot (support mSATA)
CPU Cooler	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10

PICMG 1.3



Model	PCIE-Q470	PCIE-Q370	PCIE-Q170	PCIE-H810	PCIE-Q870-i2
CPU Socket	LGA1200	LGA1151	LGA1151	LGA 1150	LGA 1150
CPU Type	10th generation Intel® Core™ i9/i7/5/i3/Celeron® and Pentium® processor	8th/9th Generation Core™ i9/i7/i5/i3, Celeron® and Pentium® processor	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® Q470E	Intel® Q370	Intel® Q170	Intel® H81	Intel® Q87
Memory	Four 288-pin 2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs (system Max. 128 GB)	Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB	Four 288-pin 1866/2133 MHz dual-channel non-ECC unbuffered DDR4 DIMMs (system max. 64 GB)	Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 16 GB)	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)
Display Interface	Triple independent display 1 x HDMI 1 x Internal 180° Type-C DP	Dual display supported 1 x VGA 1 x DP PCIe-Q370-HDMI 1 x HDMI 1 x DP	Triple display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I219LM PHY LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)	LAN1: Intel® I219LM Clarkville-V with Intel® AMT 11.0 supported LAN2: Intel® I210 PCIe controller	LAN1: Realtek RTTL8111E PCIe controller LAN: Realtek RTTL8111E PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support
iRIS Remote Management Module	N/A		1 x iRIS-2400 slot (optional)	N/A	1 x iRIS-2400 slot
I/O Interface	4 x USB 3.2 Gen2 2 x USB 3.2 Gen1 1 x KB/MS 2 x RS-232 2 x RS-422/485 (RS485 support AFC) 6 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x RS-422/485 3 x RS-232 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 2 x RS-232 2 x RS-232/422/485 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 3.2 Gen 1 8 x USB 2.0	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 4 x RS-232 4 x USB 3.2 Gen 1 8 x USB 2.0
Storage Interface	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (B Key) 1 x M.2 (M Key)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	2 x SATA 3Gb/s 2 x SATA 6Gb/s	6 x SATA 6Gb/s (RAID 0, 1, 5, 10 supported)
Audio	Supports by IEI AC-KIT-888S-R10 audio kit				
Digital I/O	8-bit programmable digital I/O				
Power Consumption	TBD	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (4.0 GHz Intel® Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)	5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A (Intel® Core™ i7-6700K 4.0GHz CPU with 64GB (four 16GB) 2133 MHz DDR4 memory)	5V@3.41A, 12V@0.35A, Vcore_12V@7.52A, 3.3V@1.41A, 5VSB@0.12A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)	5V@3.55A, 12V@0.37A, Vcore_12V@7.61A, 3.3V@1.55A, 5VSB@0.13A (3.4GHz Intel® Qual CoreCPU with four GB 1333 MHz DDR3 memory)
Watchdog Timer	Software programmable supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing				
Expansion Slot	16-lanes PCIe via golden finger 4-lanes PCIe via golden finger 4 x PCI signal via golden finger 1 x M.2 (A Key) 1 x M.2 (B Key) 1 x M.2 (M Key)	1 x M.2 M key 1 x PCIe x16 & 4 x PCIe x1 signal via golden finger 4 x PCI signal via golden finger	1 x Full/Half-size PCIe Mini card slot 4 x PCI signal via golden finger	1 x Full-size PCIe Mini card slot (support mSATA)	1 x Full-size PCIe Mini card slot (support mSATA)
CPU Cooler	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10	CF-1150SB-R11 CF-1150SC-R20 CF-1150SE-R11 CF-1150SF-R10

PICMG 1.3 Passive Backplane for Half-Size CPU Card

PICMG 1.3 (PCIe+PCI)	Model	HPE2-3S1	HPXE2-5S1	HPXE2-6S1	HPXE2-7S1	HPXE2-8S1
Total Slot		5	5	6	7	8
Expansion Slots	PCIe x16	1 (Gen 3.0)	1 (Gen 3.0)	1 (Gen 3.0)		
	PCIe x8				2 (Gen 3.0)	2 (Gen 3.0)
	PCIe x4	1 (Gen 3.0)				
	PCI		2	3	3	4
PSU Type			24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX
Chassis Option		PAC-400AI PR-1500G	PR-1500G	PAC-1000 PAC-106G	PAC-700G PAC-1700G	PAC-125G
		RACK-500AI	RACK-500G			RACK-3000G RACK-360G
Note		ATX power	ATX power	ATX power	ATX power	ATX power

PAC series wall-mount chassis
 4U rack-mount chassis

PICMG 1.3 Backplane

Backplane		SPE-6S	SPE-9S	SPXE-11S	SPXE-14S
Total	Slot	6	7	11	14
PCIe	x16				
	x8		1 (x16 connector) (Gen 3.0)		1 (x16 connector) (Gen 3.0)
	x4	5 (Gen 3.0)	3 (Gen 3.0)	6 (x16 connector) (Gen 3.0)	
	x1				12 (x4 connector) (Gen 3.0)
	PCI		3	4	
PSU Type		24+4-pin ATX	24+4-pin ATX	24+8-pin ATX	24+8-pin ATX
Chassis Option		PAC-106G PAC-1000G	PAC-125G	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G

PAC series wall-mount chassis
 4U rack-mount chassis

PICMG 1.3 Passive Backplane

PICMG 1.3 (PCIe+PCI)	Model	PE-2SD1	PE-3S1	PE-4S	PE-5S	PE-5S2	PE-6S	PE-6S2	PE-6SD	PE-6SD3
Total Slot		2	5	4	5	5	6	6	5	5
Expansion Slots	PCIe Slots	x16 *	1 (Gen 2.0)	1 (Gen 3.0)	1	1 (2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)
		x4		1 (Gen 3.0)	1	1 (Gen 2.0)		1 (Gen 2.0)		1 (Gen 2.0)
		x1				3 (Gen 2.0)	2 (Gen 2.0)		3 (Gen 2.0)	
	PCI Slots			1	2		2	3		2
USB Connectors by Pin Header		4		4	4	4	4	4	4	4
PSU Type		24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX
Chassis		RACK-1150-PE	RACK-500AI	N/A	RACK-500G	RACK-500G	RACK-305G RACK-360G RACK-3000G PAC-1700G PAC-125	PAC-106G PAC-1000G	N/A	N/A
Note		1U Type							2U Type	2U Type

PICMG 1.3 (PCIe+PCI)	Model	PE-7S	PE-8S	PE-9S	PE-10S	PE-10S2	PXE-13S	PXE-19S2
Total Slot		7	8	9	10	10	13	19
Expansion Slots	PCIe Slots	x16 *	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 2.0)	1 (Gen 3.0)	1 (Gen 3.0)
		x4						
		x1	2 (Gen 2.0)	3 (Gen 2.0)	4 (Gen 2.0)	4 (Gen 2.0)	3 (Gen 3.0)	1 (Gen 3.0)
	PCI-X Slots							
	PCI Slots		3	3	3	4	4	16
USB Connectors by Pin Header		4	4	4	4	4	4	4
PSU Type		24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX	24+4-pin ATX
Chassis		PAC-1700G	PAC-125G	N/A	RACK-305G RACK-360G RACK-3000G	RACK-3000G RACK-305G RACK-360G	RACK-3000G RACK-305G RACK-360G	N/A
Note							PCIe to PCI Bridge Backplane	

PAC series wall-mount chassis
 4U/5U rack-mount chassis
 1U/2U rack-mount chassis

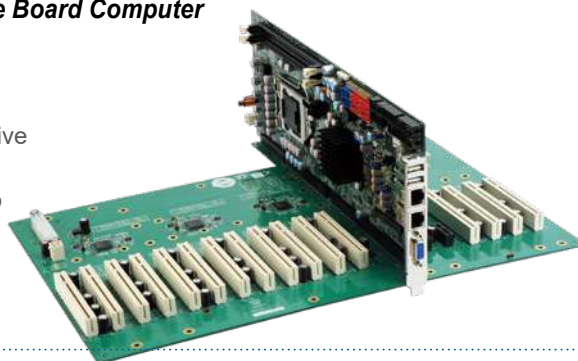
*When using a PCIe x16 add-on card, the length of the card must not exceed 167mm or 6.57 inches.

» PCI/PX Backplane

Supports PCI and ISA slot on one backplane! For PICMG 1.0 Single Board Computer

The advantages of using the PICMG 1.0 card are numerous:

1. Supports standard PICMG version 1.0 slot on the PCI/PX series passive backplane
2. Compatible with all available PCI/ISA cards. PCI/PX backplane is also integrated with the ROCKY series card slot



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Model	PCI-5S2A-RS-R40 / PCI-5S2-RS-R40	PCI-6S-RS-R40	PCI-7S-RS-R41	PCI-8S-RS-R40
Total Slot	5	6	7	8
PCI Slot	4	4	4	4
ISA Slot	1	2	3	4
PSU Type	ATX/AT	ATX/AT	ATX/AT	ATX/AT
Chassis	RACK-500G	PAC-106G PAC-1000G	PAC-1700G	N/A

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Model	PCI-10S-RS-R41	PX-10S-RS-R50	PCI-12S-RS-R40	PCI-14S-RS-R40
Total Slot	10	10	12	14
PCI Slot	4	7	4	4
ISA Slot	5	3	7	9
PSU Type	ATX/AT	ATX/AT	ATX/AT	ATX/AT
Chassis	PAC-125G	PAC-125G	RACK-3000G	N/A

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Model	PCI-14S3-RS-R40	PX-14S3-RS-R50	PX-14S5-RS-R50
Total Slot	14	14	14
PCI Slot	4	12	7
ISA Slot	9	2	6
PSU Type	ATX/AT	ATX/AT	ATX/AT
Chassis	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G	RACK-305G RACK-360G RACK-3000G

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Model	PCI-2SD2-RS-R41	PCI-5SD6-RS-R40	PCI-5SDA-RS-R40	PCI-6SD-RS-R40
Total Slot	2	6	6	6
PCI Slot	R2	L2+R2	L2+R2	L1+R1
ISA Slot				L1+R1
PSU Type	ATX/AT	ATX	ATX/AT	ATX
Chassis	RACK-1150G	RACK-220G	RACK-220G	RACK-220G

PAC series wall-mount chassis

4U/5U rack-mount chassis

1U/2U rack-mount chassis

» Half-size PICOe, ISA Selection Guide



Model	PCISA-BT	IOWA-LX
CPU Socket	On board	On board
CPU Type	Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W) Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)	AMD Geode™ LX600
Chipset	N/A	AMD Geode™ CS5536
Memory	One 204-pin 1066/1333 MHz single-channel DDR3L SDRAM unbuffered DIMM (system max. 8 GB)	On-board 128MB 200/266 MHz DDR SDRAM One 200-pin 200/266 MHz DDR SO-DIMM (system max. 512MB)
Display Interface	Dual display supported 1 x VGA 1 x iDP interface	1 x VGA
Ethernet	LAN1: Intel® I211-AT PCIe controller LAN2: Intel® I211-AT PCIe controller	10/100Mbps Realtek RTL8100C Ethernet controller
I/O Interface	1 x 6-pin wafer for KB/MS 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 3.2 Gen 1 8 x USB 2.0	1 x Infrared interface 1 x LPT 1 x PS/2 KB/MS 1 x RS-422/485 2 x RS-232 4 x USB 2.0 (by pin header)
Storage Interface	1 x mSATA (colay SATA2, supports SATA 3Gb/s signal only) 2 x SATA 3Gb/s	1 x CF Type II 1 x FDD 1 x IDE 2 x SATA (RAID 0, 1)
Audio	IEI AC-KIT-888S-R10 7.1-channel HD Audio kit via the on-board 10-pin header connector	Realtek ALC203 with AC'97 codec
Digital I/O	8-bit digital I/O	
Power Consumption	5V@1.55A, 12V@0.74A (Intel® Atom™ E3845 1.91GHz CPU, one 8 GB 1600 MHz memory)	5V@1.51A, 5VSb@0.09A (On-board AMD Geode™ LX600 CPU 366 MHz with on-board 128MB 200 MHz DDR memory and 512MB 333 MHz DDR memory)
Watchdog Timer	8-bit digital I/O	
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	1 x PCIe Mini slot	NA
CPU Cooler	NA	Heatsink (fanless)

» Full-size PICMG 1.0



Model	WSB-H810	
CPU	4th generation LGA 1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported	Front Panel
Chipset	Intel® H81	1 x Front panel (2x7 pin, power LED, HDD LED, speaker, power button, reset button)
Memory	Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 16 GB	LAN LED
BIOS	UEFI	2 x LAN LED (1x2 pin)
Graphics Engine	Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2/ Full MPEG2, VC1, AVC Decode	Digital I/O
Display Output	Dual independent display 1 x VGA (up to 1920x1200@60 Hz) 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160@60 Hz)	8-bit digital I/O (2x5 pin)
Ethernet	LAN1: Intel® I217-LM Ethernet controller LAN2: Intel® I211-AT Ethernet controller	TPM
Audio	IEI AC-KIT-888S-R10 7.1-channel HD Audio kit via the on-board 10-pin header connector	1 x TPM (2x10 pin)
External I/O Interface	2 x USB 2.0	SMBus
Internal I/O Interface	1 x KB/MS (1x6 pin)	1 x SMBus (1x4 pin)
	2 x SATA 6Gb/s	I²C
	1 x LPT (2x13 pin)	1 x I²C (1x4 pin)
	2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)	Infrared Interface
	1 x RS-422/485 (1x4 pin, P=2.0)	1 x Infrared Interface (1x5 pin)
	4 x RS-232 (2x5 pin, P=2.54)	Expansion
	1 x USB 2.0 (180° Type-A)	1 x Full-size PCIe Mini card slot (support mSATA) PCI and ISA signal via golden finger
	4 x USB 2.0 (2x4 pin, P=2.54)	Watchdog Timer
	1 x SATA 3Gb/s (AHCI supported, no RAID)	Software programmable supports 1~255 sec. system reset
		Fan Connector
		1 x CPU smart fan (1x4 pin) 1 x System smart fan (1x3 pin)
		Power Supply
		5V/12V, AT/ATX support
		Power Consumption
		5V@3.4A, 12V@0.36A, Vcore_12V@7.48A, 3.3V@1.42A, 5VSB@0.13A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)
		Operating Temperature
		-20°C ~ 60°C
		Storage Temperature
		-30°C ~ 70°C
		Operating Humidity
		5% ~ 95%, non-condensing
		Dimensions
		338 mm x 122 mm
		Weight: GW
		1000g / NW: 260g
		CE/FCC
		compliant

» IP/IPX Series Backplane

Supports PCI and ISA slot on one backplane!
For half-size PCISA series single board computers

The advantages of using the PCISA card are numerous:

1. Supports standard PISA version 1.0 slot on the IP/IPX series passive backplane.
2. Compatible with all available PCI/ISA cards. IP/IPX backplane is also integrated with the PCISA series card slot.

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Model	IP-3S-RS	IP-4S-RS	IP-4S4-RS	IP-5SA2-RS
Total Slot	3	4	4	5
PCI Slot	2	3		4
ISA Slot			3	
PSU Type	AT	AT	AT	ATX
Chassis	PAC-53GH	PAC-400G PAC-42GH	PAC-400G PAC-42GH	PR-1500G

RoHS Ready



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Model	IP-6S-RS	IP-6SA-RS	IP-10S-RS	IPX-13S-RS
Total Slot	6	6	10	13
PCI Slot	3	3	4	12
ISA Slot	2	2	5	
PSU Type	AT	ATX	ATX/AT	ATX/AT
Chassis	PAC-1000G	PAC-106G PAC-1000G	PAC-125G	RACK-305G RACK-360G RACK-3000G

PAC series wall-mount chassis

4U rack-mount chassis

» BP Series Backplane

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Model	BP-3S-RS-R40	BP-4S-RS-R40	BP-5S-RS-R40	BP-6S-RS-R40	BP-7S-RS-R40	BP-8S-RS-R41	BP-10S-RS-R40
Total Slot	3	4	5	6	7	8	10
ISA Slot	3	4	5	6	7	8	10
PSU Type	AT	AT	AT	AT	AT	AT	AT
Chassis	PAC-53GH	PAC-400G PAC-42GH	PR-1500G	PAC-106G PAC-1000G	PAC-700G PAC-1700G	N/A	PAC-125G

PAC series wall-mount chassis

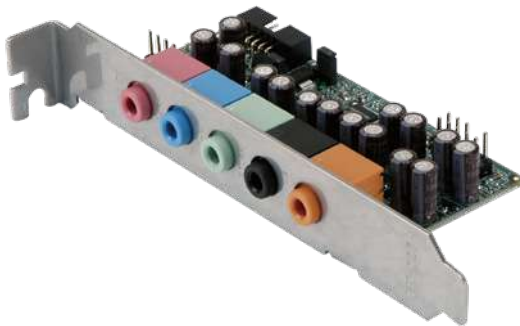
4U rack-mount chassis

» PCI/PICoE Backplane

	PCIe/PCI	PCIe/PCI	HPE-3S1	HPE-3S2	HPE-4S2	HPE-5S1	HPE-5S2	HPE-6S1	HPE-8S
Total Slot			3	3	4	5	5	6	7
Expansion Slots	PCI		2	1	2	4	3	4	4
	PCIe	x4		1 (Gen 2.0)	1 (Gen 2.0)		1 (Gen 2.0)	1 (Gen 2.0)	
		x1							2 (Gen 2.0)
Chassis			N/A	N/A	PAC-42GH PAC-400G	PR-1500G RACK-500G	PR-1500G RACK-500G	N/A	N/A

PAC series wall-mount chassis
 4U rack-mount chassis

» AC-KIT-888S



- Realtek ALC888S HD Audio codec IC supported
- Five audio jacks for microphone, 7.1+2-channel high definition audio input and output
- High performance 7.1+2-channel high definition audio board provides 7.1-channel sound playback and multiple streaming through the front panel stereo outputs
- Digital to Analog Converter (DAC) with 97dB Signal to Noise Ratio (SNR)
- Analog to Digital Converter (ADC) with 90dB Signal to Noise Ratio (SNR)
- All the Digital to Analog Converter (DAC) supports 44.1k/48k/96k/192kHz sampling rate
- All the Analog to Digital Converter (ADC) supports 44.1k/48k/88.2k/96k/192kHz sample rate
- Driver supports Windows® 2000/2003/XP/Vista/7/10 (32/64 bits) and Linux (Ubuntu or Debian)
- CE/FCC compliant

» AC-KIT08R



- Realtek ALC655 AC'97 audio codec IC supported
- Three audio jacks for microphone, 5.1-channel AC'97 audio input and output
- Full duplex AC'97 2.3 compatible 5.1-channel audio codec designed for PC multimedia system
- Supports double sampling rate (96kHz) of DVD audio playback
- Driver supports Windows® 2000/2003/XP/VISTA/7 (32/64 bits) and Linux (Ubuntu or Debian)
- CE/FCC compliant

» IO-KIT-001-R20



- 26-pin header for DVI (from main board), pitch=2.0 mm
- 2 x 8-pin header for USB 1.1/2.0 (from main board, four sets), pitch=2.54 mm
- DVI-D connector on edge
- Four USB 1.1/2.0 connectors on edge
- CE/FCC compliant

Industrial Motherboard



Model	IMBA-X570	IMBA-W480	IMBA-Q470	IMBA-C2460	IMBA-Q370
CPU Socket	AMD AM4	LGA1200	LGA1200	LGA1151	LGA1151
CPU Type	AMD Ryzen™ 5000/4000/3000 G-Series with Radeon™ Vega Graphics processor	10th generation Intel® Xeon® W, Core™ i9/i7/5/i3/ processor	10th generation Intel® Core™ i9/i7/5/i3/Celeron® and Pentium® processor	8th/9th generation Intel® Xeon® E, Core™ i9/i7/5/i3/Pentium® and Celeron® processor	8th/9th generation Intel® Xeon® E, Core™ i9/i7/5/i3/Pentium® and Celeron® processor
Chipset	AMD X570	Intel® W480E	Intel® Q470E	Intel® C246	Intel® Q370
Memory	Four 288-pin 4400/3200/2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs (ECC mode support varies by CPU) (system Max. 128 GB)	Four 288-pin 2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs (ECC&non-ECC support) (system Max. 128 GB)	Four 288-pin 2933 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMMs (system Max. 128 GB)	Four 288-pin 2666/2400 MHz dual channel DDR4 SDRAM unbuffered DIMMs (ECC&non-ECC support) (system Max. 64 GB)	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)
Display Interface	Triple independent display 1 x VGA 1 x HDMI 1 x DisplayPort	Triple independent display 1 x VGA 1 x DisplayPort 1 x HDMI 1 x Internal 180° Type-C DP	Triple independent display 1 x VGA 1 x DisplayPort 1 x HDMI 1 x Internal 180° Type-C DP	Triple independent display 1 x HDMI 2.0 1 x DVI-I 1 x iDP interface	Triple independent display support 1 x HDMI 2.0 1 x DVI-I 1 x iDP interface
Ethernet	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I219LM with Intel® AMT 11.0 support	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I219LM with Intel® AMT 11.0 support
iRIS Remote Management Module	N/A				
I/O Interface	2 x KB/MS 2 x RS-232/422/485 (RS-485 support AFC) 2 x USB 3.2 (Gen1 Type A+1 type C) 5 x RS-232 6 x USB 2.0 8 x USB 3.2 Gen1	1 x 422/485 (RS-485 support AFC) 1 x RS-232/422/485 (RS-485 support AFC) 2 x PS/2 KB/MS 2 x USB 3.2 Gen2 4 x RS-232 4 x USB 3.2 Gen1 8 x USB 2.0	1 x 422/485 (RS-485 support AFC) 1 x RS-232/422/485 (RS-485 support AFC) 2 x PS/2 KB/MS 2 x USB 3.2 Gen2 4 x RS-232 4 x USB 3.2 Gen1 8 x USB 2.0	1 x LPT 1 x PS/2 KB/MS 2 x RS-232/422/485 (RS-485 support AFC) 4 x RS-232 4 x USB 2.0 8 x USB 3.2	1 x PS/2 KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 8 x USB 3.2
Storage Interface	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x M.2 (M Key)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
Audio	Realtek ALC888S HD Audio codec				
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)				
Power Consumption	TBD	TBD	TBD	3.3V@0.38A, 5V@9.38A, 12V@6.23A, 5VSB@0.16A (Intel® Core™ i5-8500 3.0 GHz CPU with four 16 GB 2400 MHz DDR4 memory)	3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSB@3.4A (Intel® Core™ i7-8700K up to 4.60 GHz CPU with 32GB 2600MHz DDR4 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing				
Expansion Slot	1 x M.2 (M Key) 1 x M.2 (A Key) 2 x PCIe x16 (Gen4) x16 & x8 signal 2 x PCIe x4 (Gen4) x4 & x1 signal 2 x PCI slot	1 x M.2 (A Key) 1 x M.2 (M Key) 1 x PCIe x16 (Gen3) 3 x PCIe x4 (Gen3) 3 x PCI	1 x M.2 (A Key) 1 x M.2 (M Key) 1 x PCIe x16 (Gen3) 3 x PCIe x4 (Gen3) 3 x PCI	1 x M.2 (A Key) 1 x M.2 (M Key) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot	1 x M.2 (A Key) 1 x M.2 (M Key) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot
CPU Cooler	TBD	TBD	TBD	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

Industrial Motherboard



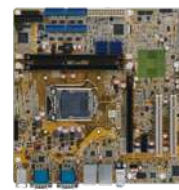
Model	IMBA-H310	IMBA-C2360-i2	IMBA-Q170-i2	IMBA-H112	IMBA-H110
CPU Socket	LGA1151	LGA1151	LGA1151	LGA1151	LGA1151
CPU Type	8th/9th generation Intel® Core™ i9/i7/i5/i3/Pentium® and Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	6th generation Intel® Core™ i7/i5/i3 Pentium® and Celeron® processor	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor
Chipset	Intel® H310	Intel® C236	Intel® Q170	Intel® H110	Intel® H110
Memory	Four 288-pin 2666/2400 MHz dual channel DDR4 SDRAM unbuffered DIMMs (ECC&non-ECC support) (system Max. 64 GB)	Four 288-pin 2133 MHz dualchannel DDR4 SDRAM unbuffered DIMMs (ECC&non-ECC support) (system Max. 64 GB)	Four 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)	Two 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)	Two 288-pin 2133 MHz dual-channel DDR4 SDRAM unbuffered DIMMs (system Max. 64 GB)
Display Interface	Triple independent display support 1 x DVI-D 1 x VGA 1 x Internal 180° Type-C DP	Triple independent display support 1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface	Triple independent display support 1 x HDMI 2.0 1 x DVI-D 1 x VGA 1 x iDP interface	Dual independent display support 1 x VGA 1 x HDMI 1 x iDP interface	Dual independent display support 1 x DVI-I 1 x HDMI 1 x iDP interface
Ethernet	LAN1: Intel® I219LM with Intel® AMT 11.0 support LAN2: Intel® I211 AT PCIe controller	LAN1: Intel® I219LM with Intel® AMT 11.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I219LM with Intel® AMT 11.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I219V PHY LAN2: Intel® I211 PCIe controller	LAN1: Intel® I219V PHY LAN2: Intel® I211 PCIe controller
iRIS Remote Management Module	N/A	1 x iRIS-2400 slot	1 x iRIS-2400 slot	N/A	N/A
I/O Interface	1 x LPT 1 x RS-232/422/485 (RS-485 support AFC) 2 x KB/MS 4 x USB 2.0 4 x USB 3.2 Gen 1 5 x RS-232	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 5 x USB 3.2 Gen 1 7 x USB 2.0	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 5 x USB 3.2 Gen 1 7 x USB 2.0	1 x KB/MS 1 x LPT 1 x RS-232/422/485 4 x USB 3.2 5 x RS-232 5 x USB 2.0	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x RS-232 4 x USB 3.2 Gen 1 5 x USB 2.0
Storage Interface	4 x SATA 6G/s (no RAID)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported)	3 x SATA 6Gb/s	4 x SATA 6Gb/s
Audio	Realtek ALC888S HD Audio codec				
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)			N/A	8-bit programmable I/O (8-bit GPIO is for programming I/O)
Power Consumption	3.3V@0.39A, 5V@2.99A, 12V@3.08A, 5VSB@0.2A (Intel® Core™ i5-8500 up to 3.00 GHz CPU with 20 GB 2400/2133 MHz DDR4 memory)	3.3V@1.51A, 5V@3.31A, 12V@9.02A, 5VSB@3.7A (Intel® Xeon® E3-1275 v5 3.60 GHz CPU with 32 GB (four 8GB) 2133 MHz DDR4 memory)	3.3V@1.65A, 5V@3.4A, 12V@8.58A, 5VSB@0.22A (Intel® Core™ i7-6700K 4.0GHz CPU with 32 GB (four 4 GB) 2133 MHz DDR4 memory)	3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A (4.0 GHz Intel® Core™ i7-6700K CPU with two 8 GB 2133 MHz DDR4 memory)	3.3V@1.53A, 5V@2.95A, 12V@8.38A, 5VSB@3.2A (Intel® Core™ i7 6700K 4.0GHz CPU with 16GB (two 8GB) 2133 MHz DDR4 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing				
Expansion Slot	1 x PCIe x16 (Gen3) 1 x PCIe x4 (Gen2) 4 x PCI	1 x Full-size PCIe Mini card slot (support mSATA) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 2 x PCIe x8 (Gen3) 3 x PCIe x4 (Gen3) 2 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x16 slot (Gen3) 1 x PCIe x4 4 x PCI slot	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x16 slot (Gen3) 6 x PCI slot
CPU Cooler	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10

Industrial Motherboard



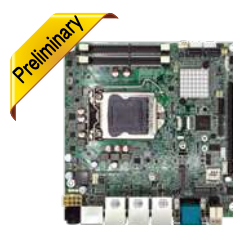
Model	IMBA-H810	IMBA-C2260-i2-R11	IMBA-Q870-i2
CPU Socket	LGA1150	LGA1150	LGA1150
CPU Type	4th generation Intel® Core™ i7/i5/i3 Pentium® and Celeron® processor	Intel® Xeon® E3, Core™ i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® H81	Intel® C226	Intel® Q87
Memory	Two 240-pin 1333/1600 MHz dual-channel DDR3 SDRAM unbuffered DIMM (system max. 16 GB)	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM ECC and non-ECC unbuffered DIMMs (system max. 32 GB)	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)
Display Interface	Dual independent display support 1 x DVI-D 1 x VGA 1 x iDP interface	Dual display supported 1 x VGA 1 x iDP interface	Triple display supported 1 x VGA 1 x DVI-D 1 x HDMI 1 x iDP interface
Ethernet	LAN1: Intel® I217-LM with Intel® AMT 9.0 support LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support
iRIS Remote Management Module	N/A	1 x iRIS-2400 slot	1 x iRIS-2400 slot
I/O Interface	1 x IR 1 x PS/2 for KB/MS 1 x RS-232/422/485 1 x USB 2.0 Type A 2 x USB 3.2 Gen 1 5 x RS-232 6 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 3.2 Gen 1 5 x RS-232 8 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 3.2 Gen 1 5 x RS-232 8 x USB 2.0
Storage Interface	2 x SATA 3Gb/s 2 x SATA 6Gb/s	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x mSATA (colay SATA port 6) (support SATA 6Gb/s signal only)	6 x SATA 6Gb/s (RAID 0/1/5/10 supported) 1 x mSATA (colay SATA port 6) (support SATA 6Gb/s signal only)
Audio	Realtek ALC888S HD Audio codec		
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)		
Power Consumption	3.3V@0.83A, 5V@2.2A, 12V@3.88A, 5VSB@0.3A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB (two 4 GB) 1333 MHz DDR3 memory)	3.3V@0.57A, 5V@4.50A, 12V@0.14A, Vcore_12V@5.20A, 5VSB@0.19A (Intel® E3-1240 v3 3.4GHz CPU with 16 GB (four 4 GB) 1333 MHz DDR3 memory)	3.3V@0.66A, 5V@4.34A, 12V@0.16A, Vcore_12V@4.01A, 5VSB@0.21A (Intel® Core™ i7-4770K 3.90 GHz CPU with four 1333 MHz 4 GB DDR3 DDR3 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -10°C ~ 60°C (14°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	
Expansion Slot	1 x PCIe x 16 2 x PCIe x 1 4 x PCI 1 x PCIe Mini (support mSATA)	1 x PCIe x16 slot 3 x PCIe x4 slot Default setting: 1 x PCIe x8, 2 x PCIe x4 Optional setting: 1 x PCIe x16 by BIOS setting 1 x PCIe x1 slot 2 x PCI slot	1 x PCIe x16 slot (Gen 3) 1 x PCIe x4 slot 1 x PCIe x1 slot 4 x PCI slots
CPU Cooler	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10

Industrial Motherboard



Model	IMB-H110	IMB-Q870-i2	IMB-H810-i2-R11
CPU Socket	LGA1151	LGA1150	LGA1150
CPU Type	6th generation Intel® Core™ i7/i5/i3, Celeron® and Pentium® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor
Chipset	Intel® H110	Intel® Q87	Intel® H81
Memory	Two 288-pin 2133MHz Dual-Channel DDR4 SDRAM Unbuffered DIMM supported up to 64GB	Four 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)	Two 240-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 32 GB)
Display Interface	Dual independent display support 1 x VGA 1 x DVI-I 1 x LVDS 1 x iDP	Triple display supported 1 x VGA 1 x DVI-D 1 x HDMI 1 x iDP interface	Triple display supported 1 x VGA1 1 x VGA2 1 x iDP interface
Ethernet	Dual LAN: RTL 8111GN controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller with NCSI support	LAN1: Intel® I217LM LAN2: Intel® I210-AT PCIe controller with NCSI support
iRIS Remote Management Module	N/A	1 x iRIS-2400 slot	
I/O Interface	1 x KB/MS 1 x LPT 2 x RS-232/422/485 4 x USB 3.2 Gen 1 8 x USB 2.0 10 x RS-232	1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 3.2 Gen 1 5 x RS-232 8 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 by s/w selection 2 x RS-232 2 x USB 3.2 Gen 1 8 x RS-232 10 x USB 2.0
Storage Interface	4 x SATA 6Gb/s (RAID 0/1 supported)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	2 x SATA 6Gb/s 2 x SATA 3Gb/s (AHCI supported)
Audio	Realtek ALC888S HD Audio codec		
Digital I/O	8-bit programmable digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)	N/A
Power Consumption	3.3V@ 0.93A, 5V@2.99A, 12V@6.88A, 5VSB@0.02A (Intel® Core™ i7-6700K 4.0GHz CPU with 16GB (two 8GB) 2133 MHz DDR4 memory)	3.3V@0.53A, 5V@4.96A, 12V@0.12A, Vcore_12V@3.95A, 5VSB@0.18A (Intel® Core™ i7-4770K 3.90 GHz CPU with 16 GB four 1333 MHz 4 GB DDR3 memory)	3.3V@0.64A, 5V@4.20A, 12V@0.14A, Vcore_12V@3.88A, 5VSB@0.20A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8 GB two 1333 MHz 4 GB DDR3 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F~140°F) Relative Humidity: 5% ~ 95% non-condensing		
Expansion Slot	1 x PCIe x16 slot (Gen3) 1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot (Gen2) 2 x PCI slot	1 x PCIe x16 slot (Gen 3) 1 x PCIe x4 slot 1 x PCIe x1 slot 1 x PCI slot	1 x PCIe x16 slot (Gen 3) 1 x PCIe x1 slot 2 x PCI slot
CPU Cooler	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10	CF-115XA-R10 CF-115XE-R10

» Mini-ITX



Model	KINO-EHL	tKINO-ULT6	KINO-DH420	KINO-KX
CPU Socket	On Board	On Board	LGA1200	On Board
CPU Type	Intel Atom® x6000E Series processors, Intel® Pentium® and Celeron® N and J Series processors (Code name: Elkhart Lake)	11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor	10th generation Intel® Core™ i9/i7/5/i3/ Pentium® and Celeron® processor	Zhaoxin Kaixian KX-6000 series 8-core processor Zhaoxin KX-U6580/U6780A on-board SoC
Chipset	Intel Atom® x6000E Series processors, Intel® Pentium® and Celeron® N and J Series processors (Code name: Elkhart Lake)	11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor	Intel® H420E	Zhaoxin ZX-200
Memory	1 x 260-pin 3200 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 32 GB)	2 x 260-pin 3200 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	2 x 260-pin 2933 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	2 x 260-pin 2666 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)
Display Interface	Triple independent display 1 x HDMI 1.4b (up to 4096 x 2160@30Hz) 1 x DP 1.4a (up to 4096 x 2160 @60Hz) 1 x eDP / LVDS	Quadruple independent display 1 x DisplayPort 1 x eDP/LVDS (select by switch) 1 x HDMI 2.0 1 x Type-C DP with USB4	Dual independent display 1 x DP 1 x HDMI 1 x internal Type-C DP	Dual independent display 1 x VGA 1 x DVI-I
Ethernet	2 x GPHY211 (2.5 GbE) 1 x MARVEL 88E1512 1G PHY (support TSN)	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Intel® I225V 2.5GbE controller LAN2: Intel® I225V 2.5GbE controller	LAN1: Realtek RTL8111H PCIe GbE controller LAN2: Realtek RTL8111H PCIe GbE controller
iRIS Remote Management Module	N/A			
I/O Interface	1 x RS-422/485 1 x USB 3.2/2.0 Port (Vertical type-A) 2 x USB 3.2 Gen2 3 x RS-232 6 x USB 2.0	1 x RS-232/422/485 (RS-485 support AFC) 1 x RS-422/485 (RS-485 support AFC) 1 x USB4 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen2	1 x KB/MS 1 x RS-422/485 (RS-485 support AFC) 2 x USB 2.0 2 x USB 3.2 Gen2 3 x RS-232 4 x USB 3.2 Gen1	1 x KB/MS 4 x USB 3.2 Gen 1 10 x RS-232 10 x USB 2.0
Storage Interface	1 x SATA 6Gb/s 1 x M.2 B key (with SIM holder) (PCIe x2/ SATA/ USB 3.2)	2 x SATA 6Gb/s 1 x M.2 (M Key)	2 x SATA 6Gb/s 1 x M.2 (B Key)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)
Audio	Realtek ALC888S HD Audio codec			
Digital I/O	8-bit programmable I/O (8-bit GPIO is for programming I/O)			N/A
Power Consumption	TBD	TBD	TBD	12V@3.38A, 3.3V@0.62A, 5V@9.81A, 5VSB@0.03A (Zhaoxin KX-U6580 2.5 GHz CPU with 8 GB 2400 MHz DDR4 memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset			
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing			
Expansion Slot	1 x PCIe x4 Slot Open-ended (Gen3.0 x1 signal) 1 x M.2 A key (PCIe x1 & USB 2.0) 1 x M.2 B key (with SIM holder) (PCIe x2/ SATA/ USB 3.2)	1 x PCIe x8 Slot (x4 Gen4 signal) 1 x M.2 (A Key) 1 x M.2 (M Key)	1 x PCIe x16 (Gen3) 1 x M.2 (B Key) 1 x M.2 (A Key)	1 x PCIe x16 slot (x8 Gen3 signal) 1 x Full-size PCIe Mini Slot
CPU Cooler	Cooler/Heatsink	Cooler/Heatsink	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	Cooler

» Mini-ITX



Model	gKINO-V1000/R1000	KINO-DH310	KINO-DH110	KINO-DAL	tKINO-AL
CPU Socket	On Board	LGA1151	LGA1151	On Board	On Board
CPU Type	AMD® Ryzen™ Embedded V1000/R1000 series on board SoC	8th generation Intel® Core™ i7/ i5/i3 Pentium® and Celeron® processor	6th/7th generation Intel® Core™ i7/i5/i3 Pentium® and Celeron® processor	Intel® Atom™/Celeron®/ Pentium® on-board SoC	Intel® Atom™/Celeron®/ Pentium® on-board SoC
Chipset	AMD® Ryzen™ Embedded V1000/R1000 series on board SoC	Intel® H310	Intel® H110	Intel® Atom™/Celeron®/ Pentium® on-board SoC	Intel® Atom™/Celeron®/ Pentium® on-board SoC
Memory	2 x SO-DIMM DDR4 2666MHz up to 64GB	2 x 260-pin 2666/2400 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	2 x 260-pin 2666/2400 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	2 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	2 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)
Display Interface	Triple independent display 4 x DP (KINO-V1000) 3 x DP (KINO-R1000)	Dual independent display 2 x HDMI 1 x iDP interface	Dual independent display 1 x DP++ 1 x HDMI 1 x iDP interface	Triple independent display 1 x VGA 1 x HDMI 1 x 18/24-bit dual channel LVDS	Triple independent display 2 x DP++ 1 x eDP
Ethernet	Dual LAN: RTL8119I	Dual LAN: RTL8111H	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I219LM with Intel® AMT 11.0 support	Dual LAN: Intel® I210-IT/211AT PCIe controller	Dual LAN: RTL8111
iRIS Remote Management Module	N/A				
I/O Interface	2 x USB 3.2 Gen1 4 x USB 2.0 8 x RS-232 (2 support Cctalk, TTL)	1 x KB/MS 1 x RS-422/485 3 x RS-232, 4 x USB 3.2 Gen 1 4 x USB 2.0	1 x KB/MS 1 x RS-232/422/485 2 x RS-232, 4 x USB 3.2 Gen 1 4 x USB 2.0 2 x SATA 6G/s	1 x PS2 KB/MS 2 x RS-232/422/485 2 x USB 2.0 4 x RS-232 4 x USB 3.2 Gen1	1 x PS/2 KB/MS 2 x RS-232/422/485 2 x USB 2.0 4 x RS-232 4 x USB 3.2 Gen 1
Storage Interface	2 x SATA 6G/s 1 x M.2 2242/2280 M key (PCIe x2/SATA)	2 x SATA 6G/s	1 x M.2 (B Key) (2242) (SATA signal)	2 x SATA 6Gb/s with 12/5V SATA power connector 1 x 8 GB eMMC (optional) 1 x M.2 (B Key) (2242)(SATA port1 + USB 2.0 signal) 1 x Micro SD slot (Optional)	2 x SATA 6Gb/s with 12/5V SATA power connector 1 x M.2 (B Key) (2242)(SATA port1 + USB 2.0 signal) 1 x Micro SD slot (Optional)
Audio	Realtek ALC888S HD Audio codec				Realtek ALC269 HD Audio codec
Digital I/O	8-bit programmable digital I/O				
Power Consumption	TBD	12V@11.32A (Intel® Core™ i7-8700 up to 4.60 GHz CPU with two 8GB 2666MHz DDR4 memory)	12V@12.16A (3.4GHz Intel® Core™ i7-6700 with two 8GB 2133MHz 16GB DDR4 memory)	8-bit programmable digital I/O 12V@3.62A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L memory)	12V@2.58A (Intel® Pentium® N4200 CPU with two 8GB 1600MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing			Temperature Range: KINO-DAL: -20°C ~ 70°C (-4°F ~ 158°F) KINO-DALW2: -40°C ~ 85°C (-40°F ~ 185°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -20°C ~ 70°C (-4°F ~ 158°F) Relative Humidity: 5% ~ 95% non-condensing
Expansion Slot	1 x PCIe x16 slot 1 x M.2 2242/2280 M key (PCIe x2/SATA)	1 x PCIe x16 1 x M.2 M key (2280, Gen2 PCIe x2 only) 1 x M.2 A Key (2230, PCIe x1 & USB 2.0)	1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot	1 x PCIe x1 slot 1 x Full/Half-size PCIe Mini card slot (w/ SIM holder)	1 x PCIe x1 slot 1 x Full/Half-size PCIe Mini card slot (w/ SIM holder)
CPU Cooler	Cooler	CF-115XA-R10 CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	Heatsink	Heatsink

» Mini-ITX



Model	tKINO-ULT3	KINO-DCM236	KINO-DQM170	KINO-AQ170	tKINO-BW
CPU Socket	On Board	On Board	On board	LGA1151	On board
CPU Type	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Xeon™ E3, Core™ i3, Celeron® process	6th generation Intel® Core™ i7/i5/i3 and Celeron® processor	6th/7th generation Intel® Core™ i7/i5/i3, Pentium® and Celeron® processor	Intel® Pentium®/Celeron® on board SoC
Chipset	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® CM236	Intel® QM170	Intel® Q170	Intel® Pentium®/Celeron® on-board SoC
Memory	2 x SO-DIMM DDR4 2133MHz, system maximum up to 32GB	2 x SO-DIMM DDR4 2133MHz up to 32GB with ECC support	Two 260-pin 2133 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	Two 260-pin 2133 MHz dual-channel DDR4 SDRAM SO-DIMMs (system Max. 64 GB)	Two 204-pin 1600/1333 MHz dual-channel DDR3L SDRAM SO-DIMMs (support up to 8 GB)
Display Interface	Triple independent display 1 x HDMI/DP 1 x HDMI 1 x LVDS/eDP	Triple independent display 1 x HDMI 2.0 2 x HDMI 1.4 1 x LVDS	Triple independent display supported 1 x HDMI 2.0 2 x HDMI 1.4 1 x LVDS	Triple independent display supported 1 x HDMI 2.0 1 x HDMI/DP 1 x VGA 1 x iDP interface	Triple independent display supported 1 x HDMI/DP 1 x VGA 1 x 18/24-bit dual-channel LVDS
Ethernet	LAN1: Intel® I219LM LAN2: Intel® I211AT	LAN1: Intel® I219LM LAN2: Intel® I211	LAN1: Intel® I219-LM with Intel® AMT 11.0 support LAN2: Intel® I211 PCIe controller	LAN1: Intel® I211 PCIe controller LAN2: Intel® I219LM with intel AMT 11.0 support	Dual LAN: Realtek RTL8111G PCIe controller
iRIS Remote Management Module	N/A				
I/O Interface	2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 2 x RS-232/422/485 4 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1	1 x KB/MS 2 x RS-232/422/485 4 x RS-232 4 x USB 3.2 Gen 1 6 x USB 2.0	1 x KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x RS-232 4 x USB 2.0
Storage Interface	2 x SATA 6Gb/s with 5V SATA power connector 1 x eMMC5.0 (up to 32G, optional)	4 x SATA6Gb/s 1 x mSATA	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	4 x SATA 6Gb/s (RAID 0/1/5/10 supported)	2 x SATA 6Gb/s 1 x mSATA 1 x Micro SD slot
Audio	Realtek ALC888S HD Audio codec				
Digital I/O	8-bit programmable digital I/O				
Power Consumption	12V@4.68A (Intel® Core™ i7-6600U up to 3.4GHz CPU with 16GB (8GB x 2) DDR4-2133 memory running in 3.2GHz)	12V@6.93A (Intel Xeon E3-1505M V5 2.8GHz CPU with 32 GB (two 16 GB) 2133 MHz DDR4 memory)	12V@5.08A (Intel® Core™ i7-6820EQ, 3.5GHz CPU with 16 GB (two 8 GB) 2133 MHz DDR4 memory)	3.3V@1.62A, 5V@3.54A, 12V@8.17A, 5VSB@3.6A (Intel® Core™ i7 6700K 4.0 GHz CPU with 16 GB (two 8 GB) 2133 MHz DDR4 memory)	12V@1.61A (Intel® Celeron® N3710 CPU with two 4 GB 1600 MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing				
Expansion Slot	1 x PCIe x4 slot 1 x Full-size PCIe Mini card slot (support mSATA, colay with SATA2) 1 x Full-size PCIe Mini card slot (with SIM card slot)	1 x PCIe x16 slot 1 x Full-size PCIe Mini card slot (support mSATA) 1 x Half-size PCIe Mini card slot 1 x M.2 2230 (A key)	1 x PCIe x16 slot 1 x Full-size PCIe Mini card slot (support mSATA) 1 x Half-size PCIe Mini card slot 1 x M.2 2230 (A key)	1 x PCIe x8 slot 1 x Full-size PCIe Mini card Slot (support mSATA)	1 x PCIe x1 slot 1 x PCIe Mini card slot
CPU Cooler	Heatsink	Heatsink	Heatsink	CF-115XC-R10 CF-115XD-R10 CF-115XE-R10	Heatsink

» Mini-ITX



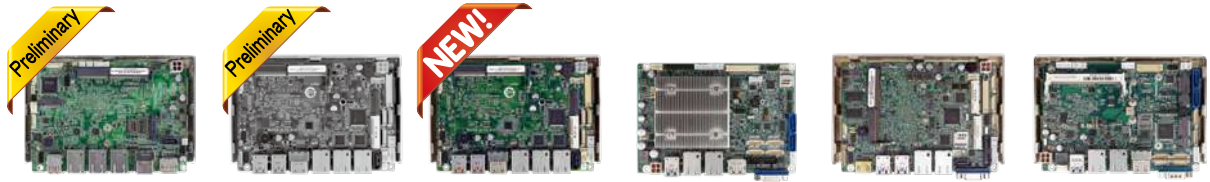
Model	KINO-DBT	KINO-DH810	eKINO-BT	KINO-DQM871-i1	KINO-QM770
CPU Socket	On board	LGA1150	On board	On Board	Socket G2
CPU Type	Intel® Atom™/Celeron® on board SoC	Intel® Core™ i7/i5/i3, Pentium®, Celeron® processor	Intel® Atom™/Celeron® on-board SoC	Intel® Core™ i7/i5/i3 Mobile processor	Intel® Mobile processor
Chipset	Intel® Atom™/Celeron® on-board SoC	Intel® H81	Intel® Atom™/Celeron® on-board SoC	Intel® QM87	Intel® QM77
Memory	Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826) One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 4 GB (N2807, E3825, E3815)	Two 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs (system max. 16 GB)	Two 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM support up to 8 GB (J1900, N2930, E3845, E3827, E3826) One 204-pin 1066/1333 MHz dual-channel unbuffered DDR3L SDRAM SO-DIMM supports up to 4 GB (N2807, E3825, E3815)	2 x 204-pin, Max. 16 GB, 1333/1600 MHz dual-channel DDR3 SO-DIMMs	2 x 204-pin, Max. 16 GB, 1066/1333/1600 MHz dual-channel DDR3 SO-DIMMs
Display Interface	Dual independent display supported 1 x VGA 1 x DVI-D	Dual display supported 1 x VGA 1 x DVI-D 1 x iDP interface	Dual display supported 1 x VGA 2 x 18/24-bit dual-channel LVDS	Triple display supported 2 x HDMI 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Triple display supported 2 x HDMI 1 x DVI-I 1 x 18/24-bit dual-channel LVDS
Ethernet	Dual LAN: Realtek RTL8111HN PCIe controller	Dual LAN: Intel® I211-AT PCIe controller	Dual LAN: Realtek RTL8111E PCIe controller	LAN1: Intel® I217LM with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller	LAN1: Intel® 82579 PHY with Intel® AMT 8.0 support LAN2: Intel® 82583V PCIe controller
iRIS Remote Management Module	N/A			1 x iRIS-1010 slot	N/A
I/O Interface	1 x KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 4 x USB 2.0 5 x RS-232	1 x PS/2 for KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 5 x RS-232 6 x USB 2.0	1 x PS/2 for KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 4 x RS-232 4 x USB 2.0	1 x PS/2 for KB/MS 1 x RS-422/485 1 x SMBus 1 x TPM (2x10 pin) 4 x USB 3.2 Gen 1 5 x RS-232 10 x USB 2.0	1 x KB/MS 1 x RS-422/485 1 x SMBus 1 x TPM (2x10 pin) 2 x RS-232 4 x USB 2.0 4 x USB 3.2 Gen 1
Storage Interface	2 x SATA 3Gb/s 1 x Micro SD slot (E38xx sku only)	2 x SATA 6Gb/s	2 x SATA 3Gb/s	2 x SATA 6Gb/s 2 x SATA 3Gb/s 1 x mSATA	2 x SATA 6Gb/s 2 x SATA 3Gb/s
Audio	Realtek ALC888S HD Audio codec				
Digital I/O	8-bit programmable digital I/O				
Power Consumption	12V@1.64A (Intel® Celeron® J1900 CPU with 4 GB 1333 MHz DDR3L memory)	12V@6.03A (Intel® Core™ i7-4770K 3.90 GHz CPU with two 1333 MHz 4 GB DDR3 memory)	12V@1.55A (Intel® Celeron® J1900 CPU with two 8 GB 1333 MHz DDR3L memory)	12V@5.03A (2.0GHz Intel® Core™ i7 processor with two 1333 MHz 4 GB DDR3 memory)	12V@6.08A (2.3GHz Intel® Core™ i7-3610QE with two 1333 MHz 4 GB DDR3 memory running 3DMark06 burn in)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing		Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -10°C ~ 60°C (14°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	
Expansion Slots	1 x Full-size PCIe Mini card slot (support mSATA) 1 x PCIe x4 slot (with PCIe x1 signal)	1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot	1 x Full-size PCIe Mini card slot 1 x PCIe x1 slot	1 x PCIe x16 slot 1 x Full-size PCIe Mini slot (support mSATA)	1 x PCIe x16 slot 1 x PCIe Mini card slot (support mSATA)
CPU Cooler	Heatsink	CF-115XA-R10 CF-115XE-R10	Heatsink	XCF-479B-RS CF-989B-RS-R11	CF-989A-RS-R12

EPIC NANO



Model	NANO-ULT5	NANO-AL	NANO-ULT3	NANO-BT-i1/BTW2	NANO-QM871-i1	NANO-LX-R12
CPU Socket	On Board	On board	On board	On board	On board	On board
CPU Type	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™/Celeron®/Pentium® on-board SoC	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™, Celeron® SoC	Intel® Core™ i7/i5/i3, Celeron® Mobile processor	AMD Geode™ LX800
Chipset	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™/Celeron®/Pentium® on-board SoC	Intel® Core™ i7/i5/i3, Celeron® ULT processor	Intel® Atom™/Celeron® on-board SoC	Intel® QM87	AMD Geode™ LX800 + AMD CS5536
Memory	2 x 260-pin 2400/2133 MHz Dual-channel DDR3L/DDR4, SO-DIMM (system max. 32 GB)	1 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	2 x 260-pin 2133/1867 MHz dual-channel DDR4 SO-DIMMs (system max. 32 GB)	1 x 204-pin 1333/1066 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	1 x 204-pin 1600/1333 MHz dual-channel DDR3/DDR3L SO-DIMM (system max. 8 GB)	1 x 200-pin 400/333 MHz DDR SO-DIMM (system max. 1GB)
Display Interface	Triple independent displays 1 x HDMI 1 x DP 1 x Internal LVDS	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS 1 x iDP	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x HDMI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x VGA 2 x HDMI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x VGA 1 x 18-bit single-channel LVDS 1 x 24-bit TTL (LVDS to TTL)
Ethernet	1 x PCIe GbE LAN Intel® i211 controller 1 x PCIe GbE LAN Intel® i219 controller	Dual LAN: Intel® I210-IT/ I211-AT PCIe controller	LAN1: Intel® I219-LM PHY with Intel® AMT 11.0 supported LAN2: Intel® I211-AT PCIe GbE Controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I217-LM PHY with Intel® AMT 9.0 supported LAN2: Intel® I211-AT PCIe GbE controller	10/100Mbps Realtek RTL8100C
iRIS Remote Management Module	N/A			1 x iRIS-1010 slot	1 x iRIS-1010 slot	N/A
I/O Interface	1 x TPM (2x10 pin SPI interface) 1 x RS-422/485 (Support Auto Flow Control over RS-485) 2 x RS-232 2 x SATA 6G/s with 5V SATA power connector 2 x USB 2.0 4 x USB 3.2 Gen 2	1 x PS/2 KB/MS 2 x RS-232/422/485 2 x USB 2.0 4 x RS-232 4 x USB 3.2 Gen 1	1 x PS/2 KB/MS 1 x RS-232/422/485 2 x RS-232 2 x USB 2.0 4 x USB 3.2 Gen 1	1 x PS/2 KB/MS 1 x RS-422/485 1 x USB 3.2 Gen 1 3 x RS-232 3 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 2 x RS-232 2 x USB 3.2 Gen 1 4 x USB 2.0	1 x Infrared interface 1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 4 x USB 2.0 6 x RS-232
Storage Interface	2 x SATA 6Gb/s with 5V SATA power connector 1 x M.2 (M Key with SATA/PCIe interface) (Celeron with M.2 M Key PCIe only)	2 x SATA 6Gb/s with 5V SATA power connector 1 x M.2 (B Key) (SATA only)	2 x SATA 6Gb/s with 5V SATA power connector 1 x 8 GB eMMC (optional)	2 x SATA 3Gb/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector (RAID 0, 1)	2 x SATA 1.5Gb/s (RAID 0,1) 1 x IDE 1 x CF Type II
Audio	Realtek ALC888S HD Audio codec 1 x Analog audio	Realtek ALC888S HD Audio codec				Realtek ALC203 with AC'97 codec
Digital I/O	8-bit programmable digital I/O					
Power Consumption	TBD	12V@2.13 A (Intel® Pentium® N4200 CPU with one 8GB 1600MHz DDR3L memory)	12V@2.48A (Intel® Core™ i3-6100U CPU)	12V@1.52A (Intel® Atom™ Processor J1900 CPU with one 8 GB 1333 MHz DDR3L memory)	12V@3.78A (Intel® 4th Gen. 2.0GHz CPU with one 1333HMz DDR3 4 GB memory)	12V@0.92A (AMD LX800, 256 MB 400 MHz DDR)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset					
Operating Environment	Temperage Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: NANO-AL: -20°C ~ 70°C (-4°F~158°F) NANO-ALW2: -40°C ~ 85°C (-40°F~185°F) Relative Humidity: 5% ~ 95% non-condensing	Temperage Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: NANO-BT-i1: -20°C ~ 60°C (-4°F ~ 140°F) NANO-BTW2: -40°C ~ 85°C (-40°F ~ 185°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -10°C ~ 60°C (14°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: 0°C ~ 60°C (32°F ~ 140°F) Relative Humidity: 5% ~ 95% non-condensing
Expansion Slots	1 x Full-size PCIe Mini slot 1 x M.2 slot with 2230 A key 1 x M.2 slot with 2280 M key 1 x SIM card	1 x Full/Half-size PCIe Mini slot (w/ Micro SIM holder)	1 x Full-size PCIe Mini card slot (with SIM holder & mSATA support) 1 x Half-size PCIe Mini card slot	1 x Full-size PCIe Mini card slot with mSATA support 1 x PCI-104 slot	1 x Full-size PCIe Mini card slot	1 x PC/104-Plus
CPU Cooler	Heat Spreader	Heatsink	Heat Spreader	Heatsink	XCF-479B-RS / CF-989B-RS-R11	Heatsink

3.5" WAFER



Model	WAFER-JL	WAFER-ULT6	WAFER-ULT5	WAFER-AL	WAFER-ULT4/ULT3	WAFER-BW
CPU Socket	On Board	On Board	On Board	On board	On board	On board
CPU Type	Intel® Atom®, Intel® Pentium® and Celeron® N Series processors (Code name: Jasper Lake)	11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor	Intel® Mobile ULT processor	Intel® Celeron®/Pentium® on-board SoC	Intel® Mobile ULT processor	Intel® Pentium®/Celeron® SoC
Chipset	Intel® Atom®, Intel® Pentium® and Celeron® N Series processors (Code name: Jasper Lake)	11th Gen. Intel® Core™ i7/i5/i3, Celeron® UP3 processor	Intel® Mobile ULT processor	Intel® Celeron®/Pentium® on-board SoC	Intel® Mobile ULT processor	Intel® Pentium®/Celeron® SoC
Memory	One 260-pin 2933 MHz Dual-channel DDR4 SODIMMs support up to 16 GB	One 260-pin 3200 MHz Dual-channel DDR4 SODIMMs support up to 32 GB	1 x 260-pin 2400MHz DDR4 SDRAM SO-DIMM (channel 1)	1 x 204-pin 1866/1600 MHz single-channel DDR3L SO-DIMM (system max. 8 GB)	1 x 260-pin 2133MHz DDR4 SDRAM SO-DIMM (channel 1) On-board DDR4 memory (optional 4/8GB support)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)
Display Interface	Triple independent display 2 x HDMI 1 x DP up to 3840x2160 @ 60Hz	Four independent displays 2 x HDMI 1 x LVDS 1 x DP++	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS	Triple independent display 1 x VGA 1 x DP++ 1 x 18/24-bit dual-channel LVDS 1 x iDP	Triple independent displays 1 x VGA 1 x HDMI 1 x 18/24-bit dual-channel LVDS 1 x iDP interface for HDMI, LVDS, VGA, DVI, DP	Triple independent display 2 x HDMI 1 x 18/24-bit dual-channel LVDS
Ethernet	3 x PCIe 2.5 GbE with Intel i225-V/LM	3 x PCIe 2.5 GbE with Intel i225-V/LM	LAN1: Intel® I211AT LAN2: Intel® I211AT LAN3: Intel® I219LM	LAN1: Realtek RTL8111 Controller LAN2: Realtek RTL8111 Controller	1 x Intel® I219LM 1 x Intel® I211AT	LAN1: Realtek RTL8111GN controller LAN2: Realtek RTL8111GN controller
iRIS Remote Management Module	N/A					
I/O Interface	1 x RS-232/422/485 1 x USB 3.2 Gen 1 2 x RS-232 3 x USB 3.2 Gen 2	1 x RS-232/422/485 2 x USB 3.2 Gen 2 2 x USB 2.0	1 x RS-232 1 x RS-232/422/485 (Support Auto Flow Control over RS-485) 4 x USB 3.2 Gen 2 2 x USB 2.0	2 x RS-232 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x USB 2.0	2 x RS-232/422/485 4 x USB 3.2 Gen 1 2 x USB 2.0	1 x PS/2 KB/MS 2 x RS-232/422/485 2 x USB 3.2 Gen 1 4 x RS-232 4 x USB 2.0
Storage Interface	1 x SATA	2 x SATA	1 x SATA 6G/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector	1 x SATA 6Gb/s with 5V SATA power connector	2 x SATA 6Gb/s with 5V SATA power connector (no RAID) 1 x eMMC4.51 (optional)
Audio	Realtek ALC888S HD Audio codec		N/A	Realtek ALC888S HD Audio codec	N/A	Realtek ALC888S HD Audio codec
Digital I/O	8-bit programmable digital I/O					
Power Consumption	TBD	TBD	12V@3.38A (Intel® Core™ i7-8665UE up to 1.7GHz CPU with 16GB 2666MHz DDR4 memory)	12V@2.57A (Intel® Pentium® N4200 up to 2.5GHz with 8GB DDR3L memory)	12V@4.27A (Intel® Core™ i7-6600U up to 3.4GHz CPU with 16GB (16GB x1) DDR4-2133 memory running in 3.0GHz)	12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset					
Operating Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing			Temperature Range: -20°C ~ 70°C (-4°F ~ 158°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing	
Expansion Slot	1 x M.2 (A Key) 1 x M.2 (B Key)	1 x M.2 (A Key) 1 x M.2 (B Key) 1 x M.2 (B key)	1 x Full-size PCIe Mini slot (w/ SATA signal, support mSATA) 1 x M.2 slot with A Key 2230	2 x Full/Half-size PCIe Mini card slot (one supports mSATA, another one with SIM holder)	1 x Full-size PCIe Mini slot (w/ SATA signal, support mSATA) 1 x Full-size PCIe Mini slot (w/ SIM card slot support)	2 x Full/Half-size PCIe Mini card slot (one with SIM holder)
Recommended CPU Cooler	Heat Spreader	Heat Spreader	Heat Spreader	Heatsink	Heat Spreader	Heat Spreader

3.5" WAFER



Model	WAFER-BTW2	WAFER-ULT2/ ULT-i1	WAFER-BT- E38001W2	WAFER-BT	WAFER-KBN-i1	WAFER-LX-R12	WAFER- LX2-R12
CPU Socket	On board	On board	On Board	On board	On board	On board	On board
CPU Type	Intel® Atom™/ Celeron® SoC	Intel® Mobile ULT processor	Intel® Atom™ SoC	Intel® Atom™/ Celeron® SoC	AMD® Embedded G-Series SoC	AMD Geode™ LX800	AMD Geode™ LX800
Chipset	Intel® Atom™/ Celeron® SoC	Intel® Lynx Point SoC	Intel® Atom™ SoC	Intel® Atom™/ Celeron® on-board SoC	AMD® Embedded G-Series SoC	AMD Geode™ LX800 + AMD CS5536	AMD Geode™ LX800 + AMD CS5536
Memory	4 GB solder-down 1066/1333 MHz DDR3L memory (for E3845) 2 GB solder-down 1066/1333 MHz DDR3L memory (for E3825)	2 x 204-pin 1600/1333 MHz dual-channel DDR3L SO-DIMMs (system max. 16 GB)	On-board DDR3L memory 2GB for E3825 4GB for E3845	1 x 204-pin 1066/1333 MHz dual-channel DDR3L SO-DIMMs (system max. 8 GB)	1 x 204-pin 1600/1333 MHz dual-channel DDR3 & DDR3L SO-DIMM (system max. 8 GB)	1 x 200-pin 333/400 MHz. 1 GB (max.) DDR SO-DIMM	1 x 200-pin 400 MHz. 1 GB (max.) DDR SO-DIMM
Display Interface	Dual independent dispaly 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18/24-bit dual-channel LVDS 1 x iDP interface	Dual display supported 1 x VGA 1 x 18-bit single-channel LVDS 1 x 24-bit TTL	Dual display supported 1 x VGA 1 x 18-bit single-channel LVDS 1 x 24-bit TTL
Ethernet	LAN1: Intel® I210-IT PCIe controller LAN2: Intel® I210-IT PCIe controller	LAN1: Intel® I218LM PHY with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe GbE controller	LAN1: Intel® I210-IT PCIe controller LAN2: Intel® I211-IT PCIe controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller	LAN1: Intel® I210-AT PCIe controller with NCSI support LAN2: Intel® I211-AT PCIe controller	Dual LAN: 10/100Mbps RTL8100C Ethernet Controller	LAN1: 10/100Mbps RTL8100C Ethernet Controller
iRIS Remote Management Module	N/A	1 x iRIS-1010 slot	N/A	N/A	1 x iRIS-1010 slot	N/A	N/A
I/O Interface	1 x PS/2 KB/MS 1 x RS-422/485 1 x USB 3.2 Gen 1 3 x RS-232 5 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 2 x USB 2.0 2 x USB 3.2 Gen 1 3 x RS-232	1 x PS/2 KB/MS 1 x RS-422/485 1 x RS-232 4 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 1 x USB 3.2 Gen 1 3 x RS-232 5 x USB 2.0	1 x PS/2 KB/MS 1 x RS-422/485 2 x USB 3.2 Gen 1 3 x RS-232 4 x USB 2.0	1 x LPT 1 x PS/2 for KB/MS 1 x RS-422/485 2 x RS-232 4 x USB 2.0	1 x RS-232/422/485 4 x USB 2.0 7 x RS-232
Storage Interface	2 x SATA 3Gb/s with 5V SATA power connector (no RAID) 1 x 4 GB on-borad SSD (optional) 1 x microSD 1 x mSATA	2 x SATA 6Gb/s with 5V power connector	2 x SATA 3Gb/s with 5V SATA power connector (no RAID)	2 x SATA 3Gb/s with 5V SATA power connector (no RAID)	2 x SATA 6Gb/s with 5V SATA power connector	2 x SATA 1.5Gb/s RAID 1 x IDE 1 x CF Type II	1 x IDE 1 x CF Type II
Audio	Realtek ALC888S HD Audio codec					Realtek ALC203 with AC'97 codec	
Digital I/O	8-bit programmable digital I/O						
Power Consumption	12V@1.32A (Intel® Atom™ processor E3845 with on-board 2 GB 1333 MHz DDR3L memory)	12V@2.72A (Intel® Core™ i5-4300U CPU with two 8 GB 1600 MHz DDR3 memory)	12V@1.332A (Intel® Atom E3840 Processor 1.91GHz with one 2 GB 1333 MHz DDR3 memory)	12V@1.45A (Intel® Celeron® Processor J1900 CPU with one 8 GB 1333 MHz DDR3L memory)	12V@2.12A (AMD GX-415GA 1.5GHz CPU with 1333 MHz 4 GB DDR3 memory)	5V@1.53A (AMD Geode™ LX 800 1 GB 400 MHz DDR)	5V@1.33A (AMD Geode™ LX800 512MB 333 MHz DDR)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset						
Operating Environment	Temperature Range: -20°C ~ 60°C (-4°F~140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -10°C ~ 60°C (14°F~140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: -40°C ~ 85°C Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 60°C (-4°F~140°F) Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: 0°C ~ 60°C (32°F~140°F) Relative Humidity: 5% ~ 95% non-condensing	Temperature Range: 0°C ~ 60°C (32°F~140°F) Relative Humidity: 5% ~ 95% non- condensing	
Expansion Slot	2 x Full-size PCIe Mini card slot (one with SIM holder)	1 x Full-size PCIe Mini card slot (supports mSATA)	2 x Full-size PCIe Mini card slot (one supports mSATA)	1 x Full-size PCIe Mini card slot (supports mSATA)	1 x Full-size PCIe Mini card slot (supports mSATA)	1 x PC/104	1 x PC/104
Recommended CPU Cooler	Heatsink	Heat Spreader	Heatsink	N/A	GX-415GA (with hearsink) GX-210HA (with cooler)	Heatsink	Heatsink

PC/104



Model	PM-BT	PM-LX	PM-LX2
CPU Socket	On board	On board	On board
CPU Type	Intel® Atom™/Celeron® SoC	AMD Geode™ LX 800 500 MHz	AMD Geode™ LX 800 500 MHz
Chipset	Intel® Atom™/Celeron® SoC	Geode™ LX800 + CS5536	Geode™ LX800 + CS5536
Memory	1 x 204-pin 1066/1333 MHz DDR3L SO-DIMM (system max. 8 GB)	1 x 200-pin 400 MHz 1 GB (max.) DDR SDRAM SO-DIMM	1 x 200-pin 400 MHz 1 GB (max.) DDR SDRAM SO-DIMM
Display Interface	Dual display supported 1 x VGA 1 x 18/24-bit single-channel LVDS	Dual display supported 1 x VGA 1 x 24-bit TTL	Dual display supported 1 x VGA 1 x 24-bit TTL
Ethernet	GbE by Intel® I210 Ethernet PHY	10/100Mbps LAN by Realtek RTL8100C	10/100Mbps LAN by Realtek RTL8100C
iRIS Remote Management Module	N/A		
I/O Interface	2 x RS-232/422/485 (2x5, P=2.0) 3 x USB 2.0 (1x4 pin, P=1.25)	1 x KB/MS by pin header 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 2.0	1 x KB/MS by pin header 1 x LPT 1 x RS-422/485 2 x RS-232 2 x USB 2.0
Storage Interface	1 x SATA 3Gb/s with 5V SATA power connector On-board SSD (optional)	1 x IDE 1 x CF Type II	1 x Slim FDD 1 x IDE 1 x CF Type II
Audio	N/A		
Digital I/O	1 x 8-bit DIO	N/A	
Power Consumption	5V@1.70A (Intel® Celeron® J1900 CPU with 8GB memory)	5V@1.13A (AMD Geode™ LX 800 with 1 GB DDR 400 MHz)	5V@1.09A (AMD Geode™ LX 800 with 512MB DDR 400 MHz)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operating Environment	-20°C ~ 60°C (for J1900/N2930/N2807) -40°C ~ 85°C (for E38xx)	Temperature Range: 0°C ~ 60°C Relative Humidity: 5% ~ 95%, non-condensing	Temperature Range: -40°C ~ 70°C (W) Relative Humidity: 5% ~ 95%, non-condensing
Expansion Slot	1 x Full-size PCIe Mini slot (support mSATA) 1 x PC/104-Plus (ISA+PCI)	1 x PCI-104	1 x PC-104
CPU Cooler	Heatsink	Heatsink	Heatsink

» Pico-ITX



Model	HYPER-AL	HYPER-BW	HYPER-BT
CPU Socket	On board	On board	On board
CPU Type	Intel® Celeron® SoC	Intel® Pentium®/Celeron® SoC	Intel® Atom™/Celeron® SoC
Chipset	Intel® Celeron® SoC	Intel® Pentium®/Celeron® SoC	Intel® Atom™/Celeron® SoC
Memory	1 x 204-pin 1866/1600MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8GB)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)	1 x 204-pin 1600/1333 MHz single-channel DDR3L SDRAM unbuffered SO-DIMM slot (system max. 8 GB)
Display Interface	Dual independent display 1 x HDMI 1 x LVDS	Dual independent display 2 x Mini HDMI	Dual independent display 1 x VGA 1 x iDP interface
Ethernet	LAN1: Realtek RTL8111H controller LAN2: Realtek RTL8111H controller	LAN: Realtek RTL8111GN controller	LAN: Intel® I211-AT PCIe GbE controller
iRIS Remote Management Module	N/A		
I/O Interface	1 x RS-232 2 x USB 2.0 2 x USB 3.2 Gen 1	1 x RS-232 1 x USB 3.2 Gen 1 3 x USB 2.0	1 x RS-232 1 x USB 3.2 Gen 1 3 x USB 2.0
Storage Interface	1 x SATA 6Gb/s with 5V SATA power connector (no RAID)	1 x SATA 6Gb/s with 5V SATA power connector (no RAID)	1 x SATA 3Gb/s with 5V SATA power connector (no RAID)
Audio	10 pin header on board support 7.1 channel HD Audio by IEI AC-KIT-888S-R10 kit		Realtek ALC888S HD Audio codec
Power Consumption	12V@2.36A (Intel® Celeron® processor N3350 with 8 GB 1600 MHz DDR3L memory)	12V@1.52A (Intel® Pentium® processor N3710 with 8 GB 1600 MHz DDR3L memory)	12V@1.35A (Intel® Celeron® processor J1900 with one 8 GB 1333 MHz DDR3L memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset		
Operating Environment	Temperature Range: -20°C ~ 60°C (-4°F ~ 140°F) Relative Humidity: 5% ~ 95%, non-condensing		
Expansion Slot	1 x M.2 A key 2230 1 x M.2 B key 2242	1 x M.2 (B key)	N/A
CPU Cooler	Heat Spreader	Heatsink	Heat Spreader

Computer on Module



Computer on Module	COM Express Type 10	COM Express Type 7	COM Express Type 6	COM Express Type 6	Qseven 2.0
COM Express Size	Mini: 84 mm x 55 mm	Basic: 125 mm x 95 mm	Compact: 95 mm x 95 mm	Basic: 125 mm x 95 mm	70 mm x 70 mm
Model	ICE-BT-T10W2	ICE-DN-T7	ICE-ULT3	ICE-BT-T6	iQ7-BT-E38001 iQ7-BT-E38001W2
CPU Socket	On board	On Board	On board	On board	On board
CPU Type	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™ C3000/C3000R® Onboard SoC	Intel® Skylake ULT on-board SoC	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Chipset	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™ C3000/C3000R® Onboard SoC	Intel® Skylake ULT	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Memory	2 GB soldered down 1066/1333 MHz DDR3L memory (up to 8 GB)	Four 260-pin 2400 MHz Dual-Channel DDR4 SDRAM supported Support ECC (system max. 128GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SDRAM Unbuffered DIMM supported (system max. 32GB)	Two 204-pin 1066/1333 MHz dual-channel DDR3L SO-DIMM supported (system max. 8 GB)	2 GB soldered down 1066/1333 MHz DDR3L memory (up to 4 GB)
Display Interface	Dual display supported 1 x VGA 1 x DDI 1 x eDP	N/A	Tripl display supported 2 x DDI: DisplayPort/HDMI/DVI 1 x DDI: Embedded DP (Option with 1 x Dual Channel LVDS 18/24 bit via CH7511B)	Dual display supported 1 x VGA 1 x DDI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x DDI 1 x 18/24-bit dual-channel LVDS
Ethernet	LAN1: Intel® I210 PCIe controller	4 x 10GBASE-KR	LAN1: Intel® I219LM	LAN1: Intel® I210 PCIe controller	LAN1: Intel® I210 PCIe controller
I/O Interface	1 x I²C 1 x SMBus 1 x LPC 1 x USB 3.2 Gen 1 2 x Serial port (TX & RX) 4 x USB 2.0	1 x I²C 1 x SMBus 1 x LPC 2 x Serial port (TX & RX) 4 x USB 3.2 Gen 1 4 x USB 2.0	2 x RS-232 (2-Wire) to base board 4 x USB 2.0 to base board 4 x USB 3.2 Gen 1 to base board (with 4 x USB 2.0)	1 x I²C 1 x LPC 1 x SMBus 2 x Serial port (TX & RX) 4 x USB 3.2 Gen 1 7 x USB 2.0	1 x LPC 1 x SDIO 1 x SMBus 1 x USB 3.2 Gen 1 3 x I²C 6 x USB 2.0
Storage Interface	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 3Gb/s Optional soldered down eMMC 5.1 up to 128 GB (SATA port 1)	2 x SATA 6Gb/s signal to base board eMMC 5.0 (optional)	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)
Audio	High-definition Audio interface	N/A	High-definition Audio interface		
Power Consumption	12V@0.43A, Vcore_12V@0.9 A (Intel® Atom™ E3845 CPU with 2 GB 1333 MHz DDR3L memory)	TBD	12V@2.57A, 5VSB@0.04A, 5V@0.02A (Intel® Core™ i7-6600U with two 8GB 2400 MHz DDR4 memory)	12V@0.54A, Vcore_12V@0.95A (Intel® Celeron™ J1900 CPU with two 8 GB 1333 MHz DDR3 memory)	3.3V@0.13A, 5V@0.13A, 12V@1.35A, 5VSB@0.12A (Intel® Atom™ E3845 CPU with 2 GB on-board memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset				
Operation Environment	Temperature Range: -20°C ~ 60°C -40°C ~ 85°C (ICE-BT-10-E38001W2) Relative Humidity: 10% ~ 95% non-condensing	Operating Temperature: -20°C ~ 60°C Operating Humidity: 5% ~ 95%, non-condensing	Operating Temperature: -20°C ~ 60°C Operating Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 60°C Relative Humidity: 10% ~ 95% non-condensing	Temperature Range: -20°C ~ 60°C -40°C ~ 85°C (iQ7-BT-E38001W2) Relative Humidity: 10% ~ 95% non-condensing
Expansion Slot	3 x PCIe x1 signal to baseboard	11 x PCIe x1 signal to baseboard 1 x PCIe x4 signal to baseboard	1 x PCIe x1 signal to baseboard (Via PCIe x16 channel) 8 x PCIe x1 signal to baseboard	5 x PCIe x1 signal to baseboard	3 x PCIe x1 signal to baseboard

» Peripherals



Model	GPOE-2P	GPOE-4P	GPOE-6P
Interface	PCI Express® x1	PCI Express® x1	PCI Express® x4
Ethernet	Intel® I211AT controller 9kB jumbo frame IEEE 802.3az, IEEE1588	Intel® I211AT controller 9kB jumbo frame IEEE 802.3az, IEEE1588	6 x Intel® i211AT controller 9kB jumbo frame
Fan	-	-	One 1x4 pin fan
Power Input	12~24V DC input 1 x Internal DC input (1x4 pin) 1 x External DC Jack (Φ2.1/Φ5.5) **Caution! Choose one input only at a time	12~24V DC input 1 x Internal DC input (1x4 pin) 1 x Internal DC input (2x3 pin) **Caution! Choose one input only at a time	12~24V DC input 1 x Internal DC input (2x3 pin)
PoE Capability	IEEE 802.3at 30W / 52V DC per port (Support for total 60 watts under full load)	Standard mode: IEEE 802.3af with 15.4W / 52V per port Dual port mode: IEEE 802.3at with 30W / 52V per port (Support for total 90 watts under full load)	IEEE 802.3at with 30W / 52V per port IEEE 802.3bt with 90W / 52V per port (Support for total 180 watts under full load)
Operating Temperature	0°C ~ 60°C	0°C ~ 60°C	0°C ~ 60°C
Storage Temperature	-10°C ~ 70°C	-10°C ~ 70°C	-10°C ~ 70°C
Operating Humidity	5% ~ 95%, non-condensing	5% ~ 95%, non-condensing	5% ~ 95%, non-condensing
Dimensions	130 mm x 65 mm	160 mm x 65 mm	169.44 mm x 106.65 mm
Weight	110g	110g	286g
Compliant	CE/FCC	CE/FCC	CE/FCC

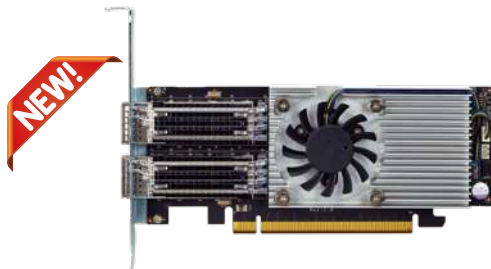
EMB-WIFI-KIT



Standard	IEEE 802.11a/b/g/n/ac, Wi-Fi compliant / Bluetooth4.0 Standard
Major chipset	Realtek RTL8821AE
Antenna	2x standard U.FL Connector
Frequency range	Wi-Fi: 2.4GHz/5GHz, BT: 2402MHz~2483MHz
Modulation	Wi-Fi: 802.11a/g/n/ac: OFDM 802.11b: CCK(11, 5.5Mbps), DQPSK(2Mbps), BPSK(1Mbps)

Receive Sensitivity	Wi-Fi: 802.11a: less than -65 dBm (54M) 802.11b: less than -76 dBm (11M) 802.11g: less than -65 dBm (54M) 802.11n @2.4GHz: less than -64 dBm (HT20 MCS7) 802.11n @2.4GHz: less than -61 dBm (HT40 MCS7) 802.11n @5GHz: less than -64 dBm (HT20 MCS7) 802.11n @5GHz: less than -61 dBm (HT40 MCS7) 802.11ac @5GHz: less than -51 dBm (VHT80 MCS9) BT: BER < 0.1% (Anritsu 8852B Tx -70 dBm)
Driver support	Windows 7/8/10, Linux kernel 3.18
Temperature	0°C ~ 70°C
Dimensions	29.85mm x 26.65mm x 1.5mm
Weight	NW: 3.28g

LAN-100G2SF-E810



- ◆ Form Factor
Low profile PCI Express® add on card
- ◆ NIC
Intel® E810
- ◆ LAN Interface
QSFP28
- ◆ Speed
100GbE
- ◆ LAN Ports
2 x LAN ports
- ◆ Host Interface
1 PCIe 4.0 x16
- ◆ Storage Temperature
-20°C ~ 75°C (-4°F ~ 167°F)
- ◆ Operating Temperature
0°C ~ 40°C (32°F ~ 104°F)
- ◆ Operating Humidity
5% ~ 90% RH, Non-condensing
- ◆ Dimensions (mm)
165.50 (L) x 77.8 (W) x 44.2 (H)
- ◆ RoHS compliant

IPCIE-4POE



- ◆ Interface: PCI Express® x4
- ◆ Ethernet
Intel® i210 AT controller
9kB jumbo frame
IEEE 802.3az, IEEE1588
- ◆ PoE Capability
IEEE 802.3af
15.4W / 48V DC per port
- ◆ PWR Input
12~24V DC input
Internal DC input (2x2 ATX)
External DC input (Φ2.1/Φ5.5)
- ◆ Operating Temperature: 0°C ~ 60°C
- ◆ Storage Temperature: -10°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ CE/FCC compliant

» Peripherals



MPCIE-DLAN-R10

- ◆ Form Factor: PCI Express Mini card
- ◆ BIOS: UEFI BIOS
- ◆ Ethernet Controller: Dual Intel® I210-IT
- ◆ Speed: 10/100/1000Mbps
- ◆ External Connector: 2 x 8-pin RJ-45
- ◆ Power Supply: On board 3.3V
- ◆ Compatible OS
Windows XP/Server 2003/ Server 2008/ Vista/
7 /8.1/10
Linux kernel version 2.6.32 above
- ◆ Operating Temperature: -10°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions (LxW) : 51 mm x 30 mm
- ◆ Weight: 55g
- ◆ CE/FCC compliant



MPCIE-LAN-R10

- ◆ Form Factor: PCI Express Mini card
- ◆ Ethernet Controller: Realtek RTL8111E
- ◆ Speed: 10/100/1000Mbps
- ◆ External Connector: 1 x 8-pin RJ-45
- ◆ Compatible OS
Windows 2000/ XP/ Server 2003/ Server
2008/ Vista/ 7
Linux kernel version 2.6.32 above
- ◆ Power Supply: On board 3.3V
- ◆ Operating Temperature: -10°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions (LxW): 51 mm x 30 mm
- ◆ Weight: 70g
- ◆ CE/FCC compliant



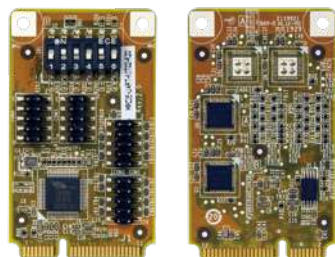
MPCIE-3G-R20

- ◆ Form Factor
PCI Express Mini card
Antenna 50Ohms. Main GSM/UMTS antenna
- ◆ Frequency Bands
GSM/GPRS/EDGE:
850/900/1800/1900 GPRS/EDGE Class12
UMTS/HSPA+:
Dual band UMTS 800/850/900/1900/2100
MHz
- ◆ USB
USB 2.0 High Speed (480Mbit/s) device
interface
- ◆ Compatible OS
Windows®8, Windows®7, Windows
EC, Linux, Android
- ◆ Operating Temperature
Normal operation: -30°C to +85°C
Restricted operation: -40°C to +95°C
- ◆ Dimensions (W x D x H)
51.0 mm x 30.0 mm x 4.75 mm



MPCIE-UART-KIT01-R20

- ◆ Form Factor: PCI Express Mini card
- ◆ PCI Express Bridge to Quad Serial Port: Fintek F81504
- ◆ Buffer/Transceiver Series: F81439
- ◆ IO: 4 x RS-232/422/485 (2x5-pin header)
- ◆ Operating Temperature: 0°C ~ 60°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions (LxW): 51 mm x 30 mm
- ◆ Weight: GW: 100g / NW: 50g
- ◆ CE/FCC compliant



MPCIE-UART-KIT02-R20

- ◆ Form Factor: PCI Express Mini card
- ◆ PCI Express Bridge to Quad Serial Port: Fintek F81504
- ◆ Buffer/Transceiver Series: F81439
- ◆ IO
2 x RS-232/422/485 (2x5-pin header)
2 x 8 bit GPIO (2x5-pin header)
- ◆ Operating Temperature: 0°C ~ 60°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions (LxW): 51 mm x 30 mm
- ◆ Weight: GW: 100g / NW: 50g
- ◆ CE/FCC compliant



TPM-IN03

- ◆ Interface
SPI interface
- ◆ Solution
Infineon SPI TPM 2.0 with SLB9670VQ2.0
FW7.85
- ◆ Management Tool Function
1. TPM management
2. File & Folder En/De-cryption
3. Personal secure drive
4. Secure email
5. Key transferring
6. Security policy configuration
7. SPI interface
- ◆ Market Segment
Complete TPM 2.0 function
- ◆ OS Support: Windows® & Linux
- ◆ Operating Temperature: 0°C ~ 60°C
- ◆ Storage Temperature: -20°C ~ 70°C
- ◆ Operating Humidity
5% ~ 95%, non-condensing
- ◆ Dimensions (LxW): 26mm x 18mm

» Peripherals

■ SATA to CFast™ Converter Board (SACFA-KIT01-R10)

- CFast™ socket
- 7-pin SATA data connector, and a female 17-pin power CFast™ connector



■ SATA to IDE/CF Type II Converter Board (SAIDE-KIT01-R10)

- CF Type II socket
- 40-pin IDE connector (master mode)
- 4-pin 5V input connector
- Power/5V/HDD LED indicator
- Support one IDE device or one CF



■ SATA to CF Type II Converter Board (SACF-KIT01-R10)

- CF Type II socket
- 50-pin CF Type II connector



■ IDE/CF Type II Converter Board (CF-KIT04-R10)

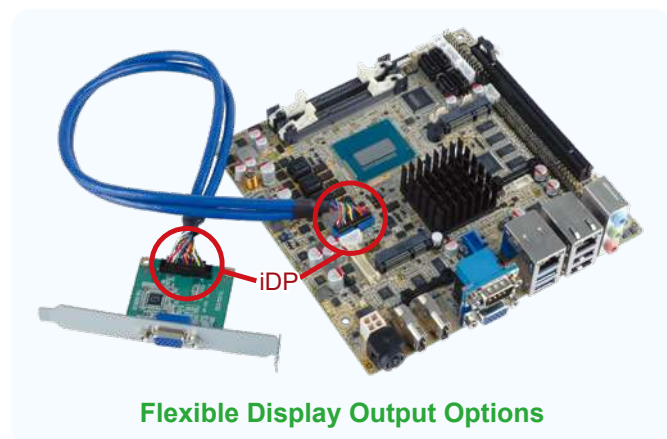
- CF Type II socket with master/slave mode selection
- 4-pin power connector
- Power/HDD signal LED



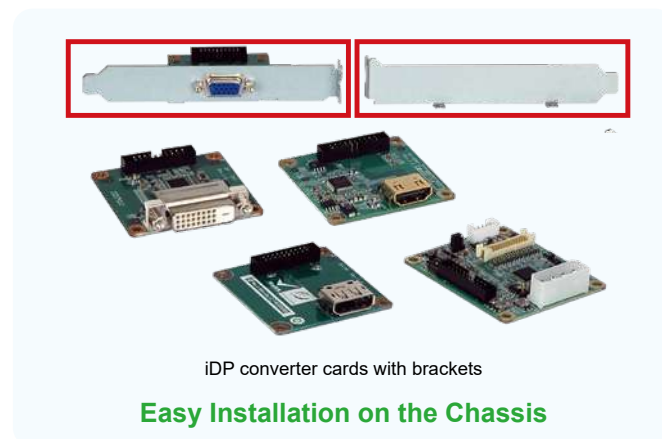
» IEI iDP Introduction

iDP (IEI Internal DisplayPort)

The iDP connector is provided on the IEI products. Through the IEI iDP converter cards, the iDP connector can support different display specifications, such as VGA, HDMI, DVI-D and LVDS.



Flexible Display Output Options



Easy Installation on the Chassis

iDP Supported Models

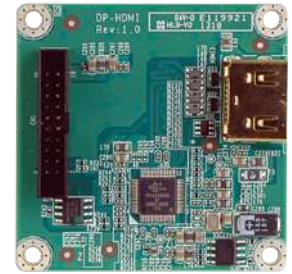
HPCIE-C236	IMBA-Q170-i2	KINO-DH110	WAFER-AL
HPCIE-Q710	IMBA-H110	KINO-AQ170	WAFER-ULT3/ULT4
SPCIE-C236	IMBA-Q870-i2	KINO-DH810	WAFER-BTW2
PCIE-Q170	IMBA-C2260-i2	KINO-DQM871-i1	WAFER-BT-i1
SPCIE-C2260-i2	IMB-H110	KINO-ABT-i2	WAFER-ULT/ULT2-i1
PCIE-Q870-i2	IMB-Q870-i2	NANO-AL/ALW2	WAFER-KBN-i1
IMBA-C2360-i2	IMB-H810-i2	NANO-ULT3	

IEI iDP Introduction



DP-DP-R10

- ◆ Display Input: 1 x IEI iDP connector
- ◆ Display Output: 1 x DisplayPort
- ◆ Temperature: -20°C ~ 60°C
- ◆ Humidity: 5 ~ 95% non-condensing
- ◆ Dimensions: 50 mm x 50 mm



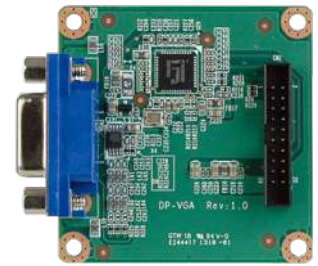
DP-HDMI-R10

- ◆ Display Input: IEI iDP connector
- ◆ Display Output: 1 x HDMI 1.3a
- ◆ Display IC: Parade - PS161 (DP to HDMI 1.3a)
- ◆ Temperature: -10°C ~ 60°C
- ◆ Humidity: 5 ~ 95% non-condensing
- ◆ Dimensions: 50 mm x 50 mm



DP-LVDS-R10

- ◆ Display Input: 1 x IEI iDP connector
- ◆ Display Output: 1 x LVDS 24-bit dual-channel
- ◆ Display IC: Chronitel - CH7511B (DP to LVDS)
- ◆ Temperature: -10°C ~ 60°C
- ◆ Humidity: 5% ~ 95 non-condensing
- ◆ Dimensions: 60 mm x 50 mm

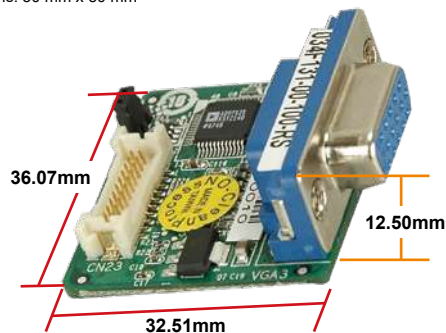


DP-VGA-R10

- ◆ Display Input: 1 x IEI iDP connector
- ◆ Display Output: 1 x VGA
- ◆ Display IC: NXP - PTN3392 (DP to VGA)
- ◆ Temperature: -10°C ~ 60°C
- ◆ Humidity: 5% ~ 95 non-condensing
- ◆ Dimensions: 50 mm x 50 mm

DP-DVI-R10

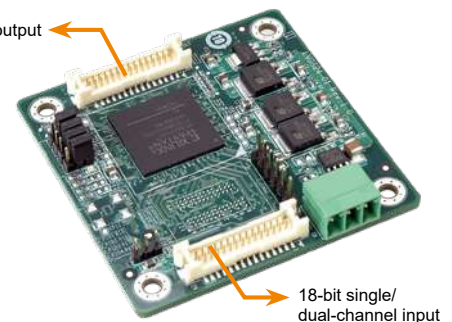
- ◆ Display Input: 1 x IEI iDP connector
- ◆ Display Output: 1 x DVI
- ◆ Display IC: Parade - PS161 (DP to HDMI / DVI)
- ◆ Temperature: -10°C ~ 60°C
- ◆ Humidity: 5% ~ 95 non-condensing
- ◆ Dimensions: 50 mm x 50 mm



LVDS-VGA-R10

- ◆ Provide 2nd VGA option for dual VGA display
- ◆ Resolution adjusted by BIOS: Support 1024x768, 800x600, 640x480
- ◆ 18-bit LVDS to VGA converter board

24-bit dual-channel output



LVDS24-01

- ◆ Resolution supports up to 1280x1024
- ◆ Support below configuration:
 - » Single-channel 18-bit to single-channel 24-bit
 - » Single-channel 18-bit to dual-channel 24-bit
 - » Dual-channel 18-bit to dual-channel 24-bit

* Note: The module does not support dual-channel 18-bit to single-channel 24-bit conversion.

» Transportation System



Model	IKARPC-07A-BT	AFOKAR-08A-RK39	IKARPC-W10A-BT
Chassis	Color	Black C + Silver	Blue C + Black C
	Dimensions (WxDxH) (mm)	210 x 154 x 28	277 x 186 x 27
	System Fan	Fanless	
	Chassis Construction	PC + ABS plastic	PC + ABS plastic
Display	Size	7"	10.1"
	Resolution	1024 x 3 (RGB) x 600	800(RGB) x 1280
	Brightness (cd/m2)	500	350
	Contrast Ratio	700:1	800:1
	Pixel Pitch (mm)	0.05 (W) x 0.15 (H)	0.0565 (W) x 0.1695 (H)
	Viewing Angle (H/V)	130° (H) / 140° (V)	150° (H)/145° (V)
	Touchscreen	Projected capacitive touch with USB interface	Projected capacitive with AG coating
Motherboard	CPU	Intel® Atom™ processor E3826 (dual-core, 1.46 GHz, 7W)	Intel® Atom™ processor E3826 (dual-core, 1.46 GHz, 7W)
	Chipset	SoC	
	System Memory	On-board 2 GB SDRAM	On-board 2 GB DDR3L
Storage	Hard Drive	N/A	1 x 2.5" SATA 3Gb/s HDD/SSD drive bay
	SD card	1 x microSD slot (supports SD 2.0, max. 32 GB)	1 x SD slot (supports SD 2.0, max. 32 GB)
	Flash	N/A	On-board 16GB eMMC NAND FLASH
	mSATA	1 x mSATA (SATA 3Gb/s) optional	N/A
Communication	WLAN	PCIe Mini Wi-Fi 802.11a/b/g/n/ac (optional)	PCIe Mini Wi-Fi 802.11a/b/g/n/ac (optional)
	Bluetooth	BT 4.0/3.0+HS (combo with Optional WLAN module)	BT 4.0/3.0+HS (combo with Optional WLAN module)
	WWAN	PCIe Mini WCDMA/HSDPA/HSUPA (optional)	PCIe Mini WCDMA/HSDPA/HSUPA (optional)
	RFID	N/A	N/A
	GPS	On-board GPS	
	20-pin Connector	1 x GbE LAN, 1 x OBD-II/J1939, 1 x USB 2.0	N/A
I/O Interfaces	24-pin Connector	1 x Audio line-out(R+L) 1 x Audio line-in 1 x RS-232 4-bit digital I/O (2-bit input, 2-bit output)	N/A
	USB 3.2 Gen 1	1	
	USB 2.0	1	1
	Ethernet	N/A	1 x RJ-45 PCIe GbE by Realtek 8111E
	COM Port	N/A	2 x DB-9 RS-232
	Digital I/O	N/A	8-bit digital I/O (4-bit input, 4-bit output)
	CAN-Bus/OBD-II	N/A	1 x DB-9 OBD-II
	Display	1 x HDMI	
	SIM	2 x On-board SIM card slot	2 x On-board SIM card slot
	Antenna	1 x GPS, 1 x WWAN	
	PCIe Mini	1 x Full-size (reserved for mSATA module), 1 x Full-size (reserved for WWAN module), 1 x Half-size (reserved for WLAN module)	1 x Full-size (reserved for WWAN module), 1 x Full-size (reserved for WLAN module)
Expansions	Speaker	1 x Speaker (2 W)	
Multimedia	Camera	2-megapixel CMOS	2-megapixel CMOS
	Power Input	Cigarette lighter power cable, DC 9 V~30 V	
Power	Power Consumption	12V @ 1.25 A	12 V @ 1.73 A
	Mounting	VESA 75	VESA 100
Reliability	Operating Temperature	-10°C ~ 60°C with air flow	-10°C ~ 60°C with air flow
	Weight (Net/Gross)	0.9 kg/2.1 kg	1.3 kg/2.8 kg
	Safety/EMC	CE/FCC/E-Mark/IP 54 compliant front panel	CE/FCC/E-Mark/IP 64 compliant front panel
OS	Supported OS	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E

Transportation System



Model		IVS-200-ULT2	IVS-110-AL
Chassis	Color	Blue C	Black
	Dimensions (WxDxH) (mm)	290 x 225 x 69	261 x 170 x 60
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-5350U 1.8 GHz (up to 2.9 GHz, dual-core, TDP 15W) Intel® Celeron® 3765U 1.9 GHz (dual-core, TDP 15W)	Intel® Atom™ x7-E3950 1.6 GHz (up to 2.0 GHz, quad-core, TDP 12W)
	Chipset	SoC	SoC
	System Memory	2 x SO-DIMM DDR3L 1600/1866 (4GB pre-installed)(up to 16GB)	1 x SO-DIMM DDR3L 1600/1866 (4GB pre-installed)(up to 8GB)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD removable bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	N/A	1 x eMMC5.0 (optional)
Communication	WLAN	802.11 a/b/g/n/ac (optional)	802.11 a/b/g/n/ac (optional)
	Bluetooth	Bluetooth 2.1 (optional)	BT 4.0/3.0+HS (optional)
	WWAN	WCDMA/HSDPA/HSUPA (optional)	WCDMA/HSDPA/HSUPA (optional)
	GPS	N/A	On-board GPS
I/O Interfaces	USB	2 x USB 3.2 Gen1 2 x USB 2.0	4 x USB 3.2 Gen1
	Ethernet	4 x RJ-45: 1 x GbE by Intel® I218 3 x GbE by Intel® I211	1 x RJ-45: 1 x GbE by Intel® I210
	COM Port	2 x RS232/422/485 with AFC (DB9) 4 x RS232 (DB9)	1 x RS232/422/485 with AFC (DB9)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(pin header)	16-bit Digital I/O (8-in/ 8-out)
	OBD-II	N/A	1 x OBD-II/J1939 (DB9)
	Display	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1600@60Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1600@60Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out
	Antenna	1 x 3G, 1 x BT, 1 x Wi-Fi	1 x 3G, 1 x GPS, 1 x BT, 1 x Wi-Fi
	Other	1 x Power button, 1 x Reset button, 1 x AT/ATX Switch, 1 x ACC Switch, 1 x LED for Power (Red), 1 x LED for Storage (Green)	1 x Power Button, 1 x LED for HDD, 1 x LED for Wi-Fi, 2 x LED for SIM
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB2.0) 1 x Full-size (PCIe/USB 2.0/SATA)	1 x Full/Half-size with SIM card slot (PCIe/USB 2.0) 1 x Full/Half-size with SIM card slot (PCIe/USB 2.0) 1 x Half-size (PCIe/USB 2.0)
Power	Power Input	DC Jack: 9 ~ 36V DC	Cigarette lighter power cable: 9 ~ 36V DC
	Power Consumption	12V @ 2.1A (Intel® i5-5350U with 4GB memory)	12V @ 5A (Intel® x7-E3950 with 8GB memory)
Reliability	Mounting	VESA 100	Wall-mount/ VESA 100
	Operating Temperature	-20 ~ 60°C with air flow, 10% ~ 95% non-condensing	-30 ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40 ~ 80°C with air flow, 10% ~ 95% non-condensing	-40 ~ 80°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810F 514.5C-2 (SSD)
	Weight (Net/ Gross)	1.3KG/ 1.45KG	2.4KG/ 3.8KG
	Safety/EMC	CE/ FCC/ E-Mark	CE/ FCC/ E-Mark
	IP Rating	N/A	IP 4X compliant
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows Embedded 8, Microsoft® Windows Embedded Standard 7 E	Microsoft® Windows 10

Transportation System



Model		IRS-100-ULT3	SBX-100-QM87
Chassis	Color	Blue C	Black
	Dimensions (WxDxH) (mm)	290 x 225 x 69	290 x 225 x 75
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Core™ i5-6300U 2.4 GHz (up to 3.0 GHz, dual-core, TDP 15W)	Intel® Core™ i5-4400E 2.7 GHz (up to 3.3 GHz, dual-core, TDP 37W)
	Chipset	SoC	Intel® QM87
	System Memory	2 x SO-DIMM DDR4 2400 (4GB pre-installed)(up to 32GB)	2 x SO-DIMM DDR3 1333/1600 (4GB pre-installed)(up to 16GB)
IPMI	iRIS Solution	N/A	1 x iRIS 2400
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD removable bay	2 x 2.5" SATA 6Gb/s SSD bay with RAID 0/1
	C-Fast	1 x C-Fast card slot	1 x C-Fast card slot
I/O Interfaces	USB	2 x USB 3.2 Gen1 1 x USB 2.0 (M12)	2 x USB 3.2 Gen1 2 x USB 2.0
	Ethernet	2 x M12: 2 x GbE by Intel® I211	2 x RJ-45: 1 x GbE by Intel® I217 (with 2kV isolation) 1 x GbE by Intel® I211 (with 2kV isolation)
	COM Port	2 x RS232/422/485 with AFC (DB9 with 1.5kV isolation)	1 x Console (DB9) 4 x RS232/422/485 with AFC (DB9 with 2.5kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)(with 1.5kV isolation)	N/A
	CAN-bus	N/A	2 x CAN-bus 2.0b (with 2.5kV isolation)
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x DVI-D (up to 1920 x 1200@60Hz)	1 x VGA (up to 1920 x 1200@60Hz) 1 x DVI-D (up to 2500 x 1600@60Hz) 1 x HDMI (up to 2500 x 1600@60Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Line-in, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	PS2 (KB/MS)	N/A	1 x
	Other	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 2 x LED for HDD, 2 x LED for LAN, 2 x LED for SIM	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Red), 1 x LED for IPMI (Yellow)
Expansions	PCIe Mini	1 x Full-size with SIM card slot (PCIe/USB 2.0) 1 x Full-size with SIM card slot (PCIe/USB 2.0/SATA)	2 x Full-size (PCIe/USB 2.0)
Power	Power Input	M12: 24/ 110V DC	Terminal block: isolated 24V DC (18 ~ 31.2V DC)
	Power Consumption	24V @ 2A (Intel® i5-6300U with 4GB memory)	100W (Intel® i5-4400E with 4GB memory)
Reliability	Mounting	Wall mount	Wall mount
	Operating Temperature	-40 ~ 70°C with air flow (SSD), 10% ~ 95% non-condensing	-15 ~ 55°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40 ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing	-20 ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Compliant with EN 61373 Category 1 Class B	IEC 60945 and DNV 2.4 IASC-E10 compliant
	Operating Vibration	Compliant with EN 61373 Category 1 Class B	IEC 60945 and DNV 2.4 IASC-E10 compliant
	Weight (Net/ Gross)	3.9KG/ 5.1KG	4.08KG/ 6.03KG
	Safety/EMC	CE/ FCC/ Compliance with EN50155, EN50121	CE/ FCC/ DNV GL CG-0339, IEC 60945 4th, IACS-E10, IEC 61174 compliant
	IP Rating	N/A	IP22 compliant rear cover
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E	Microsoft® Windows® Embedded 8, Microsoft® Windows® Embedded Standard 7 E

FLEX System



Model		FLEX-BX100-ULT5	FLEX-BX200-Q370
Chassis	Color	PANTONE 296 C	Black
	Dimensions (WxDxH) (mm)	356.5 x 222 x 44	357 x 230 x 88
	System Fan	Fanless	System Fan x3, CPU Cooler x1
	Chassis Construction	Sheet Metal with aluminum	Metal Housing
Motherboard	CPU	Intel® Core™ i5-8365UE Processor (6M Cache, up to 4.10 GHz) Intel® Celeron® Processor 4305UE (2M Cache, 2.00 GHz)	Intel® Core™ i7-8700T Processor (12M Cache, up to 4.00 GHz) Intel® Core™ i5-8500T Processor (9M Cache, up to 3.50 GHz) Intel® Pentium® Gold G5400T Processor (4M Cache, 3.10 GHz)
	Chipset	Intel® Whiskey Lake	Intel® 300 Series Chipsets Q370 (Coffee Lake)
	System Memory	2 x 260-pin 2400 MHz dual-channel DDR4 unbuffered SO-DIMM supporting up to 32GB	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB
IPMI	iRIS Solution	N/A	N/A
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	4 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	N/A	N/A
	Micro SD	N/A	N/A
I/O Interfaces	USB	4 x USB 3.2 Gen.2	6 x USB 3.2 Gen.1
	Ethernet	3 x RJ-45: 1 x GbE LAN 2 x PoE(PD) GbE LAN (IEEE802.3af/at/bt)	2 x RJ-45: 1 x GbE by Intel® I219 1 x GbE by Intel® I211
	COM Port	1 x RS-232/422/485 1 x RS-232	2 x RS-232
	Digital I/O	N/A	N/A
	CAN-bus	N/A	N/A
	Display	1 x HDMI (up to 3840 x 2160@30Hz)	1 x HDMI (up to 3840 x 2160@30Hz)
	Audio	1 x Line-out	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (Optional)	1 x TPM 2.0 (2 x 10 pin) (optional)
	Motor Connector	N/A	N/A
	Other	1 x Power switch w/LED, 1 x AT/ATX switch, 1 x Reset button	1 x Power switch w/LED, 1 x AT/ATX switch, 1 x Reset button, 1 x HDD LED
Expansions	PCIe Mini	N/A	N/A
	M.2	1 x 2230 A-Key (PCIe x 1/USB 2.0) 1 x 2280 M-Key (support NVMe SSD)	1 x M.2 A-Key (2230 for Wi-Fi) Optional 1 x M.2 B-Key (2242 for 3G, LTE, 5G) with SIM slot (Optional) 1 x M.2 M Key (2280) socket (support NVMe SSD)
	Backplane	N/A	On board PCIe slot: 2 x PCIe 3.0 x8 (x16 Slot) 2 x PCIe 3.0 x4
Power	Power Input	DC jack 12V DC	100 ~ 240V AC
	Power Consumption	12V @ 3.6A (Intel® Core™ i5-8365UE with 4GB memory)	100 ~ 240V AC @ 4 ~ 2A
	Remote PWR	N/A	N/A
Reliability	Mounting	Wall-Mount	Rack/Wall-Mount
	Operating Temperature	-10°C ~ 50°C (with air flow), 10% ~ 95% (non-condensing)	-10°C ~ 50°C (with air flow), 10% ~ 95% (non-condensing)
	Storage Temperature	-20°C ~ 60°C, 10% ~ 95% (non-condensing)	-20°C ~ 60°C, 10% ~ 95% (non-condensing)
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	3KG/5.5KG	4.1KG/7.2KG
	Safety/EMC	CE/ FCC	CE/ FCC
OS	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
	Supported OS	Microsoft® Windows 10, Linux	Microsoft® Windows 10, Linux

FLEX System



Model		FLEX-BX200-C246	FLEX-BX210-Q470	FLEX-BX210-W480
Chassis	Color	Black	Black	Black
	Dimensions (WxDxH) (mm)	357 x 230 x 88	357 x 230 x 88	357 x 230 x 88
	System Fan	System Fan x3, CPU Cooler x1	System Fan x3, CPU Cooler x1	System Fan x3, CPU Cooler x1
	Chassis Construction	Metal Housing	Metal Housing	Metal Housing
Motherboard	CPU	Intel® Xeon® E-2278GE Processor (16M Cache, 3.30 GHz)	Intel® Core™ i9-10900TE Processor (20M Cache, up to 4.60 GHz) Intel® Core™ i5-10500TE Processor (12M Cache, up to 3.70 GHz)	Intel® Xeon® W-1290TE Processor (20M Cache, up to 4.50 GHz)
	Chipset	Intel® C240 Series Chipsets C246 (Coffee Lake)	Intel® 400 Series Chipsets (Comet Lake)	Intel® 400 Series Chipsets (Comet Lake)
	System Memory	2 x 288-pin 2666/2400 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB	2 x 288-pin 2933/2666 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB	2 x 288-pin 2933/2666 MHz dual-channel DDR4 unbuffered DIMM supporting up to 64GB
IPMI	iRIS Solution	N/A	N/A	N/A
Storage	Hard Drive	4 x 2.5" SATA 6Gb/s HDD/SSD bay	4 x 2.5" SATA 6Gb/s HDD/SSD bay	4 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	N/A	N/A	N/A
	Micro SD	N/A	N/A	N/A
I/O Interfaces	USB	6 x USB 3.2 Gen.1	6 x USB 3.2 Gen.1	6 x USB 3.2 Gen.1
	Ethernet	2 x RJ-45: 1 x GbE by Intel® I219 1 x GbE by Intel® I211	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210
	COM Port	2 x RS-232	2 x RS-232	2 x RS-232
	Digital I/O	N/A	N/A	N/A
	CAN-bus	N/A	N/A	N/A
	Display	1 x HDMI (up to 3840 x 2160@30Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)
	Motor Connector	N/A	N/A	N/A
	Other	1 x Power switch w/LED 1 x AT/ATX switch 1 x Reset button 1 x HDD LED	1 x Power switch w/LED 1 x AT/ATX switch 1 x Reset button 1 x HDD LED	1 x Power switch w/LED 1 x AT/ATX switch 1 x Reset button 1 x HDD LED
Expansions	PCIe Mini	N/A	N/A	N/A
	M.2	1 x M.2 A-Key (2230 for Wi-Fi) Optional 1 x M.2 B-Key (2242 for 3G, LTE, 5G) with SIM slot (Optional) 1 x M.2 M Key (2280) socket (support NVMe SSD)	1 x M.2 A-Key (2230 for Wi-Fi) Optional 1 x M.2 B-Key (2242 for 3G, LTE, 5G) with SIM slot (Optional) 1 x M.2 M Key (2280) socket (support NVMe SSD)	1 x M.2 A-Key (2230 for Wi-Fi) Optional 1 x M.2 B-Key (2242 for 3G, LTE, 5G) with SIM slot (Optional) 1 x M.2 M Key (2280) socket (support NVMe SSD)
	Backplane	On board PCIe slot: 2 x PCIe 3.0 x8 (x16 Slot) 2 x PCIe 3.0 x4	On board PCIe slot: 2 x PCIe 3.0 x8 (x16 Slot) 2 x PCIe 3.0 x4	On board PCIe slot: 2 x PCIe 3.0 x8 (x16 Slot) 2 x PCIe 3.0 x4
Power	Power Input	100 ~ 240V AC	100 ~ 240V AC	100 ~ 240V AC
	Power Consumption	100 ~ 240V AC @ 4 ~ 2A	100 ~ 240V AC @ 6 ~ 3A	100 ~ 240V AC @ 6 ~ 3A
	Remote PWR	N/A	N/A	N/A
Reliability	Mounting	Rack/Wall-Mount	Rack/Wall-Mount	Rack/Wall-Mount
	Operating Temperature	-10°C ~ 50°C (with air flow), 10% ~ 95% (non-condensing)	-10°C ~ 50°C (with air flow), 10% ~ 95% (non-condensing)	-10°C ~ 50°C (with air flow), 10% ~ 95% (non-condensing)
	Storage Temperature	-20°C ~ 60°C, 10% ~ 95% (non-condensing)	-20°C ~ 60°C, 10% ~ 95% (non-condensing)	-20°C ~ 60°C, 10% ~ 95% (non-condensing)
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	4.1KG/7.2KG	4.1KG/7.2KG	4.1KG/7.2KG
	Safety/EMC	CE/ FCC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux	Microsoft® Windows 10, Linux	Microsoft® Windows 10, Linux

Industrial Automation System



Model		TANK-880-Q370	TANK-871-Q170	TANK-870-Q170
Chassis	Color	Black C + Silver	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	169 x 255.2 x 225	82.2 x 255.2 x 204	2-slot: 121.5 x 255.2 x 205 4-slot: 154.8 x 255.2 x 205
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	8th Gen Intel® Core™ CPU & Intel® Core™ i7-9700TE 1.8GHz (up to 3.8GHz, 8-core, TDP 35W) Intel® Core™ i5-9500TE 2.2GHz (up to 3.6GHz, 6-core, TDP 35W)		
	Chipset	Intel® Q370	Intel® Q170	Intel® Q170
	System Memory	2 x SO-DIMM DDR4 2666/ 2400 (8GB pre-installed) (up to 64GB)	2 x SO-DIMM DDR4 2666 (4GB pre-installed) (up to 32GB)	2 x SO-DIMM DDR4 2666 (4GB pre-installed) (up to 32GB)
IPMI	iRIS Solution	N/A	1 x iRIS-2400 (optional)	1 x iRIS-2400 (optional)
Storage	Hard Drive	4 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1/5/10 support)	2 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1 support)	2 x 2.5" SATA 6Gb/s HDD/SSD bay (RAID 0/1 support)
I/O Interfaces	USB	6 x USB 3.2 Gen1	4 x USB 3.2 Gen 1 4 x USB 2.0	4 x USB 3.2 Gen 1 4 x USB 2.0
	Ethernet	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210	2 x RJ-45: LAN1: GbE by Intel® I219LM LAN2 (iRIS): GbE by Intel® I210	2 x RJ-45: LAN1: GbE by Intel® I219LM LAN2 (iRIS): GbE by Intel® I210
	COM Port	3 x RS-232/422/485 with AFC (DB-9 with 2.5kV isolation)	2 x RS-232/422/485 with AFC (DB-9) 4 x RS-232 (2 x RJ-45, 2 x DB-9 with 2.5kV isolation)	2 x RS-232/422/485 with AFC (DB-9) 4 x RS-232 (2 x RJ-45, 2 x DB-9 with 2.5kV isolation)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)	8-bit Digital I/O (4-in/ 4-out)	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x HDMI (up to 3840x2160@30Hz) 1 x DP (up to 4096x2304@60Hz)	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz/4096x2304@60Hz) 1 x iDP (optional)	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI/DP (up to 3840x2160@30Hz/4096x2304@60Hz) 1 x iDP (optional)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)
Expansions	PCIe Mini	1 x Full-size (PCIe/ USB 2.0/ SATA)	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)	1 x Half-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)
	M.2	1 x 2230 A-key (PCIe x2/USB2.0) 2 x 2280 M-key (PCIe x2)	N/A	N/A
	Backplane	1 x PCIe x16 1 x PCIe x1 2 x PCIe x4	N/A	2-slot model: 1 x PCIe x16, 1 x PCI 2-slot model: 2 x PCIe x8 4-slot model: 2 x PCIe x8, 2 x PCI, 1 x Full-size PCIe Mini (PCIe/USB2.0) 4-slot model: 1 x PCIe x16, 3 x PCI, 1 x Full-size PCIe Mini (PCIe/ USB 2.0)
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V@3.6A (Intel® Core™ i7-8700T with 8GB memory)	19V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)	19V@3.68 A (Intel® Core™ i7-6700TE with 8 GB memory)
	Internal Power Connector	12V@10A	5V@3A or 12V@3A	5V@3A or 12V@3A
Reliability	Mounting	Wall mount	Wall mount	Wall mount
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing	i7-6700TE: -20°C ~ 45°C with air flow (SSD), 10% ~ 95% non-condensing i5-6500TE: -20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing	i7-6700TE: -20°C ~ 45°C with air flow (SSD), 10% ~ 95% non-condensing i5-6500TE: -20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6 C-1 (SSD)	MIL-STD-810G 514.6 C-1 (SSD)
	Weight (Net/Gross)	5.4 kg/8.45 kg	3.5 kg/4.5 kg	2-slot: 4.2 kg/6.3 kg 4-slot: 4.5 kg/6.5 kg
	Safety/EMC	CE/FCC	CE/FCC/KC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows 10, Linux	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise	

Industrial Automation System



Model		TANK-870e-H110	TANK-802-ULT5	TANK-610-BW
Chassis	Color	Dark silver purple + Silver	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	132.6 x 255.2 x 190	Non slot: 185.6 x 252.4 x 67.5 One slot: 185.6 x 252.4 x 102	184 x 200.6 x 58.2
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	7th Gen Intel® Core™ CPU & Intel® Core™ i7-6700TE 2.4 GHz (up to 3.4GHz, quad-core, TDP 35) Intel® Core™ i5-6500TE 2.3 GHz (up to 3.3GHz, quad-core, TDP 35)	Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1 GHz, quad-core, TDP 15W) Intel® Celeron® 4205U 1.8 GHz (dual-core, TDP 15W)	Intel® Celeron® N3160 1.6 GHz (up to 2.24GHz, quad-core, TDP 6W)
	Chipset	Intel® H110	SoC	SoC
	System Memory	2 x SO-DIMM DDR4 2666 (4GB pre-installed)(up to 32GB)	2 x SO-DIMM DDR4 2400 MHz (4GB pre-installed)(up to 32GB)	2 x DDR3L SO-DIMM (2GB pre-installed) (up to 8GB)
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD Bay
I/O Interfaces	USB	4 x USB 3.2 Gen1	4 x USB 3.2 Gen 2 2 x USB 2.0	4 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by RTL8111G	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I211	2 x RJ-45: 2 x GbE by Intel® I210
	COM Port	2 x RS-232/422/485 with AFC (DB-9 with 2.5kV isolation)	2 x RS-232/422/485 with AFC (DB-9 with 2.5 kV isolation) 6 x RS-232 (4 x DB-9/2 x RJ-45)	2 x RS-232/422/485 with AFC 6 x RS-232
	Digital I/O	N/A	8-bit Digital I/O (4-in/ 4-out by pin header)	N/A
	Display	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI (up to 3840 x 2160@30Hz)	1 x VGA 1 x Lockable HDMI	1 x VGA (up to 1920 x 1200@60Hz) 1 x HDMI (up to 3840 x 2160@30Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	N/A	1 x TPM 2.0 (2 x 10 pin) (optional)	N/A
Expansions	PCIe Mini	1 x Full-size (PCIe/ USB 2.0) 1 x Full-size (PCIe/ USB 2.0/ SATA)	N/A	1 x Half-size (PCIe/USB 2.0) 1 x Full-size (PCIe/SATA)
	M.2	N/A	1 x 2230 A-key (PCIe x2/USB 2.0) 1 x 2242/80 B-key (USB 2.0/SATA)	N/A
	Backplane	3A: 1 x PCIe x16, 2 x PCI 3B: 1 x PCIe x16, 1 x PCIe x4, 1 x PCI 3C: 3 x PCI	One slot: 1 x PCIe Gen 3x4	N/A
Power	Power Input	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC	Terminal Block: 9 ~ 36V DC	DC Jack: 9 ~ 36V DC Terminal Block: 9 ~ 36V DC
	Power Consumption	19V@3.44A (Intel® Core™ i7-6700TE with 8GB memory)	36V @ 1.4A (Intel® Core™ i5-8365UE with 4GB memory)	12V@1.49A (Intel® Celeron® N3160 with 4GB DDR3L memory)
Reliability	Mounting	Wall mount & Din Rail	Wall mount	Wall mount, VESA 100
	Operating Temperature	-20°C ~ 50°C with air flow (SSD), 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow(SSD), 10% ~ 95% non-condensing	-40°C ~ 60°C with air flow(SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	2.8 kg/4.3 kg	Non slot: 2.75 kg/4.85 kg One slot: 3.3 kg/5.4 kg	2.2 kg/3 kg
	Safety/EMC	CE/FCC/KC	CE/FCC	CE/FCC/KC
OS	Supported OS	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E, Microsoft® Windows® 10 IoT Enterprise	Microsoft Windows® 10, Linux	Microsoft® Windows® 8 Embedded, Microsoft® Windows® Embedded Standard 7 E

Industrial Automation System



Model		TANK-510AI-NX	TANK-500AI-XA
Chassis	Color	Black C + Silver	Black C + Silver
	Dimensions (WxDxH) (mm)	156 x 148 x 73.9	240 x 206.6 x 87
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloys	Extruded aluminum alloys
Motherboard	CPU	6-core NVIDIA Carmel ARM® v8.2 64-bit CPU 6MB L2 + 4MB L3	8-core ARM v8.2 64-bit CPU, 8MB L2 + 4MB L3
	GPU	384-core NVIDIA Volta™ GPU with 48 Tensor Cores	NVIDIA Volta™ architecture with 512 NVIDIA CUDA cores and 64 Tensor cores 11 TFLOPS (FP16) 22 TOPS (INT8)
	System Memory	8GB 128-bit LPDDR4x @ 51.2GB/s	32GB 256-bit LPDDR4x 2133MHz - 137GB/s
Storage	eMMC 5.1	1 x 16GB eMMC 5.1	1 x 32GB eMMC 5.1
	SD	1 x Micro SD card slot	1 x Micro SD card slot
I/O Interfaces	USB	4 x USB 3.2 Gen1 1 x USB 2.0 (Micro USB)	4 x USB 3.2 Gen1
	Ethernet	5 x RJ-45: 1 x GbE by NX module 4 x GbE by Intel® I211 (IEEE 802.3af PoE)	2 x RJ-45: 2 x GbE by Marvell 88E1512
	COM	1 x RS232/422/485 with AFC (DB9)	1 x RS232/422/485 with AFC (DB9)
	Digital I/O	8-bit Digital I/O (4-in/ 4-out)	8-bit Digital I/O (4-in/ 4-out)
	Display	1 x HDMI	1 x HDMI, 1 x DP
	Can-bus	1	N/A
	TPM	1 x TPM 2.0	1 x TPM 2.0
	Audio	N/A	1 x 2W speaker
Expansions	M.2	1 x 2242/80 B-key (USB2.0/SATA)	1 x 2230 E-key (PCIex1/USB 2.0) 1 x 2242/60/80 M-key (PCIex4) 1 x 2280 M.2 M-key (PCIex2 for IEI module only)
Power	Power Input	DC Jack: 19 ~ 24V DC	DC Jack: 19V DC
Reliability	Mounting	Wall mount	Wall mount
	Operating Temperature	-20°C ~ 60° C with air flow, 10% ~ 95% non-condensing	MAX: -20°C ~ 50° with air flow, 10% ~ 95% non-condensing 30W: -20°C ~ 60° C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-30°C ~ 70°C with air flow, 10% ~ 95% non-condensing	-30°C ~ 70°C with air flow, 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operation Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	TBD	TBD
	Safety / EMC	CE/FCC	CE/FCC
OS	Supported OS	Linux for Jetson Xavier NX	Linux for Jetson AGX Xavier

DIN-Rail Embedded System



Model		DRPC-330-A7K	DRPC-230-ULT5
Chassis	Color	Black	Black & Silver
	Dimensions (WxDxH)(mm)	58.75 x 130 x 174	Non-slot: 81 x 150 x 190 One-slot: 127 x 150 x 190
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Marvell® ARMADA® 88F7040 1.4 GHz (quad-core)	Intel® Core™ i5-8365UE 1.6 GHz (up to 4.1 GHz, quad-core, TDP 15W) Intel® Celeron™ 4205U 1.8 GHz (dual-core, TDP 15W)
	Chipset	SoC	SoC
	System Memory	1 x On-board DDR4 (4GB pre-installed)	2 x SO-DIMM DDR4 2400 (8GB pre-installed)
Storage	Hard Drive	N/A	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	eMMC	1 x eMMC5.1 (32GB pre-installed)	N/A
	Micro SD	1 x Micro SD slot	N/A
I/O Interfaces	USB	2 x USB 3.2 Gen1	i5 model: 6 x USB 3.2 Gen2 Celeron model: 4 x USB 3.2 Gen2, 2 x USB 2.0
	Ethernet	2 x RJ-45: 2 x GbE by Marvell 88E1512 1 x SFP+: 1 x 10GbE by Marvell 88F7040	3 x RJ-45: 1 x GbE by Intel® I219 2 x GbE by Intel® I210
	COM Port	1 x Console (RJ-45) 2 x RS232/422/485 with AFC (DB9 with 2.5kV isolation) 2 x RS232 (DB9 with 2.5kV isolation)	4 x RS232/422/485 with AFC (DB9) 2 x RS232 (RJ-45)
	Digital I/O	N/A	8-bit Digital I/O (4-in/ 4-out)(pin header)
	Display	N/A	1 x HDMI (up to 3840 x 2160@30Hz) 1 x DP (up to 4096 x 2304@60Hz)
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin)(optional)	1 x TPM 2.0 (2 x 10 pin)(optional)
	Other	1 x Power button, 1 x Reset button, 1 x Clear CMOS, 1 x LED for Power (Green), 1 x LED for Storage (Yellow), 1 x LED for Alarm (Red)	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)
	PCIe Mini	N/A	1 x Full-size with SIM card slot (PCIe/USB 3.0/SATA)
	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0) 1 x 2280 B-key (PCIe x 1) 1 x 2242/80 B-key with SIM card slot (PCIe x 1/USB 3.0/USB 2.0)	i5 model: 1 x 2230 A-key (PCIe x 1/USB 2.0) Celeron model: 1 x 2230 A-key (PCIe x 1)
Expansions	Backplane	N/A	One-slot: 1 x PCIe Gen3 x 4, 1 x USB2.0
	Power Input	Terminal block: 9 ~ 36V DC	Terminal block: 12 ~ 24V DC
	Power Consumption	36V @ 0.86A (Marvell® ARMADA® 88F7040 with 4GB memory)	12V @ 4.98A (Intel® Core™ i5-8365UE with 8GB memory)
Reliability	Remote PWR	N/A	N/A
	Mounting	DIN-Rail	DIN-Rail
	Operating Temperature	-20°C ~ 60°C with air flow, 10% ~ 95% non-condensing	-20°C ~ 70°C with air flow, 10% ~ 95% non-condensing
	Storage Temperature	-40°C ~ 80°C with air flow, 10% ~ 95% non-condensing	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/Gross)	1.3KG/ 1.45KG	Non-slot: 2.9KG/ 3.2KG One-slot: 3.2KG/ 3.5KG
	Safety/EMC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
	OS	Ubuntu 18.10	Microsoft® Windows 10, Linux

DIN-Rail Embedded System

Preliminary



Model		DRPC-140-EHL	DRPC-130-AL	DRPC-120-BT
Chassis	Color	TBD	Black	Black
	Dimensions (WxDxH) (mm)	Single layer: 79 x 216 x 230 Dual layer: 124 x 216 x 230	58.75 x 130 x 174	74.08 x 140 x 171.5
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x6425RE 1.9 GHz (quad-core, TDP 12W)	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)	Intel® Atom™ E3845 1.91 GHz (quad-core, TDP 10W)
	Chipset	SoC	SoC	SoC
	System Memory	1 x SO-DIMM DDR4 2400	1 x SO-DIMM DDR3L 1333/1600 (4GB pre-installed)	1 x SO-DIMM DDR3L 1066 (2GB pre-installed)
IPMI	iRIS Solution	N/A	N/A	1 x iRIS-2400 (optional)
Storage	Hard Drive	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 6Gb/s HDD/SSD bay	1 x 2.5" SATA 3Gb/s HDD/SSD bay
	eMMC	1 x eMMC5.1	1 x eMMC 5.0 (optional, up to 32GB)	N/A
I/O Interfaces	USB	2 x USB 3.2 Gen2 4 x USB 2.0	4 x USB 3.2 Gen1	2 x USB 3.2 Gen1 2 x USB 2.0
	Ethernet	3 x RJ-45: 3 x 2.5GbE by Intel® GPHY215	2 x RJ-45: 2 x GbE by Intel® I211	2 x RJ-45: 1 x GbE by Intel® I211 1 x GbE by Intel® I210
	COM Port	2 x RS232/422/485 with AFC (DB9) 2 x RS232 (DB9) Dual layer: 1 x RS232/422/485 with AFC (DB9 with 2kV isolation)	4 x RS232/422/485 with AFC (DB9)	2 x RS232/422/485 with AFC (DB9 with 3kV isolation) 2 x RS232 (DB9 with 3kV isolation)
	Digital I/O	Dual layer: 16-bit Digital I/O (8-in/ 8-out)(with 2kV isolation)	8-bit Digital I/O (4-in/ 4-out)	8-bit Digital I/O (4-in/ 4-out)
	CAN-bus	Dual layer: 1 x port support two CAN-bus (DB9 with 2kV isolation)	1 x port support two CAN-bus (DB9 with 2.5kV isolation)	N/A
	Display	1 x HDMI (up to 4096 x 2160@60Hz) 1 x DP (up to 4096 x 2160@60Hz)	2 x HDMI (up to 3840 x 2160@30Hz)	1 x HDMI (up to 1920 x 1200@60Hz) 1 x VGA (up to 1920 x 1200@60Hz)
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	TPM	1 x TPM 2.0 (2 x 10 pin) (optional)	1 x TPM 2.0 (2 x 10 pin) (optional)	N/A
	Motor connector	Dual layer: 4 x PWM, 1 x ESTOP, 4 x Servo alarm, 4 x QEP (2 x DB44 with 2kV isolation)	N/A	N/A
	Other	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Red), 1 x LED for HDD (Green), 1 x LED for 5G Power (Green), 1 x LED for 5G Signal (Green)	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch
Expansions	PCIe Mini	1 x Full-size (PCIe/USB 2.0/SATA)	1 x Half-size (PCIe/USB 2.0) 1 x Full-size (PCIe/USB 2.0/SATA)	1 x Half-size (PCIe) 1 x Full-size (PCIe/USB 2.0/SATA)
	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0) 1 x 3042/52/80 B-key with USIM slot (PCIe x 1/USB 3.0/USB 2.0)	N/A	N/A
Power	Power Input	Terminal block: 12 ~ 24V DC	Terminal block: 12 ~ 24V DC	Terminal block: 9 ~ 30V DC
	Power Consumption	TBD	12V @ 2.88 A (Intel® Atom™ x5-E3930 with 4GB memory)	12V @ 2.1 A (Intel® Atom™ E3845 with 2GB memory)
	Remote PWR	N/A	Terminal block: PSON	N/A
Reliability	Mounting	DIN-Rail	DIN-Rail	DIN-Rail
	Operating Temperature	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% non-condensing
	Storage Temperature	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing	-40°C ~ 85°C with air flow (SSD), 10% ~ 95% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	TBD	1.4KG/ 2.5KG	1.4KG/ 2.5KG
	Safety/EMC	CE/ FCC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux	Microsoft® Windows 10, Linux	Microsoft® 8, Microsoft® Windows® Embedded Standard 7 E

» Compact Size Embedded System



Model	ITG-100AI	ITG-100-AL	ulBX-250-BW
Chassis	Color	Blue & Silver	Blue & Silver
	Dimensions (WxDxH) (mm)	137 x 102.8 x 49.4	Single layer: 137 x 102.8 x 36.2 Dual layer: 137 x 102.8 x 56.2
	System Fan	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)	Intel® Atom™ x5-E3930 1.3 GHz (up to 1.8 GHz, dual-core, TDP 6.5W)
	Chipset	SoC	SoC
	System Memory	1 x SO-DIMM DDR3L 1600/1867 (8GB pre-installed)	1 x SO-DIMM DDR3L 1600/1867 (2GB pre-installed)(up to 8GB)
Storage	Hard Drive	N/A	1 x 2.5" SATA 6Gb/s HDD/SSD bay
	SATADOM	1 x 128GB pre-installed	N/A
	eMMC	1 x eMMC5.0 (up to 32GB)(optional)	1 x eMMC5.0 (up to 32GB)(optional)
	Micro SD	1 x Micro SD slot	1 x Micro SD slot (optional)
I/O Interfaces	USB	2 x USB 3.2 Gen1 2 x USB 2.0 (optional)	4 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by Intel® I211	2 x RJ-45: 2 x GbE by Intel® I211
	COM Port	2 x RS232/422/485 with AFC (DB9/RJ-45)	2 x RS232/422/485 with AFC (RJ-45)
	Digital I/O	N/A	8-bit Digital I/O (4-in/ 4-out)(optional)
	Display	1 x VGA (up to 1920 x 1080@60Hz)	1 x HDMI (up to 3840 x 2160@30Hz) 1 x VGA (up to 1920 x 1080@60Hz)
	Audio	N/A	N/A
	Wireless	1 x 802.11a/b/g/n/ac (optional)	1 x 802.11a/b/g/n/ac (optional)
	Other	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)	1 x Power Button, 1 x Reset Button, 1 x AT/ATX Switch, 1 x LED for Power (Green), 1 x LED for HDD (Yellow)
Expansions	PCIe Mini	Pre-installed Mustang-MPCIE-MX2 AI accelerator card	1 x Full-size (PCIe/USB 2.0/SATA)
	M.2	1 x 2230 A-key (PCIe x 1/USB 2.0)	N/A
Power	Power Input	Terminal block: 9 ~ 36V DC	Terminal block: 12 V DC
	Power Consumption	12V @ 1.2A (Intel® Atom™ E3930 with 8GB memory)	12V @ 1A (Intel® Atom™ E3930 with 2GB memory)
Reliability	Mounting	DIN-Rail	DIN-Rail/ Wall-mount
	Operating Temperature	-20°C ~ 50°C with air flow, 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow (SSD), 10% ~ 95% noncondensing
	Storage Temperature	-20°C ~ 70°C with air flow, 10% ~ 90% non-condensing	-30°C ~ 70°C with air flow (SSD), 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SSD)
	Operating Vibration	MIL-STD-810G 514.6C-1 (SSD)	MIL-STD-810G 514.6C-1 (SSD)
	Weight (Net/ Gross)	895g/ 1.7kg	Single layer: 0.67g/ 1.03kg Dual layer: 0.86g/ 1.22kg
	Safety/EMC	CE/ FCC	CE/ FCC
	Watchdog Timer	Programmable 1 ~ 255 sec/min	Programmable 1 ~ 255 sec/min
OS	Supported OS	Microsoft® Windows 10, Linux Ubuntu 16.04 LTS	Microsoft® Windows 8, Microsoft® Embedded Standard 7 E

» Digital Signage Embedded System



Model		IDS-310AI	IDS-310-AL-N1	IDS-310-AL-J1
Chassis	Color	Brown & Silver	Brown & Silver	Brown & Silver
	Dimensions (WxDxH)(mm)	137 x 102.8 x 49.2	137 x 102.8 x 38.1	137 x 102.8 x 52.1
	System Fan	Fanless	Fanless	Fanless
	Chassis Construction	Extruded aluminum alloy	Extruded aluminum alloy	Extruded aluminum alloy
Motherboard	CPU	Intel® Celeron® J3455 1.5GHz (up to 2.3GHz, quad-core, TDP 10W)	Intel® Celeron® N3350 1.1GHz (up to 2.4GHz, dual-core, TDP 6W)	Intel® Celeron® J3455 1.5GHz (up to 2.3GHz, quad-core, TDP 10W)
	Chipset	SoC	SoC	SoC
	System Memory	1 x SO-DIMM DDR3L (8GB pre-installed)	1 x SO-DIMM DDR3L (4GB pre-installed)(up to 8GB)	1 x SO-DIMM DDR3L (4GB pre-installed)(up to 8GB)
Storage	Hard Drive	Pre-installed 128GB SATADOM	1 x SATA 6Gb/s connector	1 x SATA 6Gb/s connector
	Micro SD	1 x Micro SD slot	1 x Micro SD slot (optional)	1 x Micro SD slot (optional)
I/O Interfaces	USB	3 x USB 3.2 Gen1	3 x USB 3.2 Gen1	3 x USB 3.2 Gen1
	Ethernet	2 x RJ-45: 2 x GbE by RTL8111	2 x RJ-45: 2 x GbE by RTL8111	2 x RJ-45: 2 x GbE by RTL8111
	RS-232/422/485	1 x RS-232/422/485 with AFC	1 x RS-232/422/485 with AFC	1 x RS-232/422/485 with AFC
	Display	3 x HDMI 1.4b (3840 x 2160@30Hz)	3 x HDMI 1.4b (3840 x 2160@30Hz)	3 x HDMI 1.4b (3840 x 2160@30Hz)
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in	1 x Line-out, 1 x Mic-in
	Wireless	1 x 802.11 a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)	1 x 802.11 a/b/g/n/ac (optional)
	TPM	1 x TPM2.0	Optional	Optional
Expansions	PCIe Mini	Pre-installed Mustang-MPCIE-MX2 AI accelerator card	1 x Full-size with SIM card slot (PCIe/USB2.0/SATA)	1 x Full-size with SIM card slot (PCIe/USB2.0/SATA)
	M.2	1 x 2230 A-key (PCIe x1/USB 2.0)	1 x 2230 A-key (PCIe x1/USB 2.0)	1 x 2230 A-key (PCIe x1/USB 2.0)
Power	Power Input	DC Jack: 12V DC	DC Jack: 12V DC	DC Jack: 12V DC
	Power Consumption	12V @ 2.6A (Intel® Celeron® J3455 with 8GB memory)	12V @ 1.9A (Intel® Celeron® N3350 with 4GB memory)	12V @ 2.2A (Intel® Celeron® J3455 with 4GB memory)
Reliability	Mounting	Wall mount	VESA 75/100/Wall mount (optional)	VESA 75/100/Wall mount (optional)
	Operating Temperature	-20°C ~ 45°C with air flow, 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow (mSATA), 10% ~ 95% non-condensing	-20°C ~ 60°C with air flow (mSATA), 10% ~ 95% non-condensing
	Storage Temperature	-30°C ~ 80°C with air flow, 10% ~ 90% non-condensing	-30°C ~ 80°C with air flow, 10% ~ 90% non-condensing	-30°C ~ 80°C with air flow, 10% ~ 90% non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 100 shocks per axis (SATADOM)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (mSATA)	Half-sine wave shock 5G, 11ms, 100 shocks per axis (mSATA)
	Operation Vibration	MIL-STD-810G 514.6C-1 (SATADOM)	MIL-STD-810G 514.6C-1 (mSATA)	MIL-STD-810G 514.6C-1 (mSATA)
	Weight (Net/Gross)	910g/1.7 kg	680g/1.4kg	950g/1.7kg
	Safety / EMC	CE/FCC Class A	CE/FCC Class A/BSMI	CE/FCC Class A/BSMI
	Watchdog timer	Programmable 1~255 sec/min	Programmable 1~255 sec/min	Programmable 1~255 sec/min
OS	Supported OS	Microsoft® Windows® 10, Linux	Microsoft® Windows® 10, Linux	Microsoft® Windows® 10, Linux

SBC Embedded System



Model	ECN-380-QM87	ECN-360A-ULT3	ECW-281B-BT
Chassis	Color	Silver	Black
	Dimensions (WxDxH) (mm)	265 x 134 x 56.7	255 x 130 x 75
	System Fan	Fanless	Fanless
	Chassis Construction	Aluminum alloy with heavy duty metal	SECC
Motherboard	Motherboard Model	NANO-QM871-i1	NANO-ULT3
	SBC Size (mm)	EPIC (165 x 115)	EPIC, 165 x 115
	CPU	Intel® Core™ i5-4400E 2.7 GHz Intel® Celeron® 2000E 2.2 GHz	Intel® Core™ i5-6300U Intel® Celeron® 3955U
	Chipset	Intel® QM87	N/A
	System Memory	One 204-pin DDR3 4GB SO-DIMM pre-installed (system max: 8GB)	2 x 260-pin 2133/1866 MHz dual-channel DDR4 SO-DIMMs support up to 32GB Pre-install 4GB DDR4
IPMI	iRIS Solution	1 x iRIS-1010	N/A
Storage	Hard Drive	2 x 2.5" SATA 6Gb/s HDD/SSD bay	2 x 2.5" SATA HDD bay (No RAID support)
	CF Card/CFast	N/A	N/A
I/O Interfaces	USB 3.2 Gen 1	2	4
	USB 2.0	4	N/A
	Ethernet	2 x RJ-45 LAN1: Intel® I217LM PHY with Intel® AMT 9.0 support LAN2: Intel® I210-AT PCIe controller	LAN1: Intel® I219-LM LAN2: Intel® I211-AT
	COM Port	2 x RS-232	1 x RS-232/422/485 2 x RS-232
	Digital I/O	N/A	8-bit digital I/O
	Display	2 x HDMI, 1 x VGA	2 x HDMI
	Resolution	VGA: Up to 1920x1200@60Hz HDMI: Up to 2500x1600@60Hz	HDMI: up to 4096x2160@24Hz
	Audio	1 x Line-out, 1 x Mic-in	1 x Line-out
Expansions	Wireless	1 x 802.11b/g/n	2 x 802.11b/g/n (optional)
	PCIe Mini	1 x Full-size PCIe Mini (supports mSATA, SATA 6Gb/s signal only) 1 x Half-size PCIe Mini (only for iRIS-1010)	1 x Full-size PCIe Mini card slot (with SIM holder & mSATA support) 1 x Half-size PCIe Mini card slot
Power	Power Input	DC Jack: 12 V DC 3-pin terminal: 9 V~36 V DC	DC 12V (Optional 9~36V) Power 1: DC jack Power 2: Terminal block(for optional 9~36V only)
	Power Consumption	12 V@4.6 A (Intel® mobile Core™ i5-4400E CPU with 4GB 1333MHz DDR3 memory)	12 V@2.4 A (Intel® i5-6300U with 4GB DDR4 memory)
Reliability	Mounting	Wall mount, VESA 100	Wall mount, VESA 100
	Operating Temperature	-20°C ~60°C with air flow (SSD), 10% ~ 95%, non-condensing	-20°C~60°C with air flow (SSD), 5% ~ 95%, non-condensing
	Operating Shock	Half-sine wave shock 5G, 11ms, 3 shocks per axis	
	Operating Vibration	MIL-STD-810F 514.5C-2 (with SSD)	MIL-STD-810F 514.5C-2 (with SSD)
	Weight (Net/ Gross)	2.4 kg/4.2 kg	2.2 kg/3 kg

*Systems with hard drive meet MIL-STD-810F 514.5C-1 specifications. SSD/CF systems meet MIL-STD-810F 514.5C-2 specifications.

» Embedded Chassis Series



Model	BRICK-KINO		BRICK-WAFER	BRICK-NANO
Platform	Case only			
Chassis	Color	Black		
	Dimensions (WxDxH)	203 x 178 x 64 mm	220 x 143 x 55 mm	
Motherboard	Motherboard Model	tKINO-ULT3 KINO-DAL KINO-DBT	WAFAER-AL WAFAER-BT-E38001W2	NANO-AL NANO-BT
	SBC Size (mm)	Mini-ITX (170 x 170)	3.5" (146 x 102)	3.5" (165 x 115)
Button	Power switch			
Reliability	Operating Temperature	0°C ~ 40°C		
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis		
	Operating Vibration	MIL-STD-810F 514.5C-1		
	Weight (Net/Gross)	1.25kg/1.5kg	1.2kg/1.5kg	



Model	EBC-3000		EBC-2200	EBC-2100
Platform	Case only			
Chassis	Color	Black		
	Dimensions (WxDxH)	280 x 230 x 88 mm	215 x 150 x 55 mm	262 x 134 x 56 mm
	System Fan	1 x 6 cm	1 x 4 cm	1 x 4 cm*
Chassis Construction	Heavy duty metal with plastic front panel		Aluminum alloy with heavy duty metal	
Motherboard	Motherboard Model	KINO-AQ170 KINO-ABT KINO-AA750-i2 KINO-AQ870	NANO-BT-i1 NANO-BTW2 NANO-QM871	NANO-LX
	SBC Size (mm)	Mini-ITX (170 x 170)	EPIC (165 x 115)	EPIC (165 x 115)
Storage	Hard Drive	1 x 3.5" SATA HDD space	1 x 2.5" SATA 6Gb/s HDD/SSD drive bay	1 x 2.5" SATA HDD space
	CF Card/CFast	Refer to SBC	N/A	1
	SD Card	Refer to SBC	N/A	N/A
I/O Interfaces	PS2 (KB/MS)	Refer to SBC	Refer to SBC	1
	USB 3.2 Gen 1	Refer to SBC	Refer to SBC	N/A
	USB 2.0	Refer to SBC	Refer to SBC	4
	Ethernet	2	2	1
	COM Port	Refer to SBC	Refer to SBC	1+2 RS-232*
	LPT	Refer to SBC	N/A	*1
	Display	Refer to SBC	Refer to SBC	1 x VGA
	Resolution	Refer to SBC	Refer to SBC	N/A
	Audio	Refer to SBC	1 x Line out, 1 x Mic-in	3 x Audio jack*
	Wireless	Refer to SBC	1 x 802.11b/g/n	N/A
Expansions	PCI	N/A	N/A	N/A
	PCIe	N/A	N/A	N/A
	PCIe Mini	Refer to SBC	1 x Full-size PCIe Mini card slot	N/A
	Others	N/A	N/A	1 x PCI-104
Power	Power Input	90~264V AC	12V DC	12V DC in
	Power Supply	ACE-A618C 180W ACE-A627A 270W	12V, 5A	12 V DC in, AT mode only, with 60W power adapter
Reliability	Mounting	Desktop, wall mount	Wall mount, VESA 100	Desktop, wall mount
	Operating Temperature	0°C ~ 50°C	-20°C ~ 60°C	0°C ~ 50°C
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis	Half-sine wave shock 5G, 11ms, 3 shocks per axis	Half-sine wave 3G, 11ms 3 shocks per axis
	Operating Vibration	MIL-STD-810F 514.5C-1		
	Weight (Net/Gross)	2.5 kg/3.9 kg	1.1kg/2kg	1 kg/3 kg

» Embedded Chassis Series



Model		EBC-3300	EBC-3220	EBC-3100
Platform		Case only	Case only	Case only
Chassis	Color	Black	Black	Black
	Dimensions (WxDxH) (mm)	190 x 190 x 43	190 x 180 x 55	260 x 250 x 156
	System Fan	--	1 x 4 cm	1 x 8 cm
	Chassis Construction	Heavy duty metal	Heavy duty metal	Heavy duty metal with plastic front panel
Motherboard	Motherboard Model	EBC-3300-AL-R10: tKINO-AL EBC-3300-BW-R10: tKINO-BW	tKINO-BW KINO-DQM170 KINO-DH810 KINO-DBT eKINO-BT KINO-DA750-i2 KINO-V1000/R1000 KINO-DH310 KINO-DH110 KINO-DAL	tKINO-AL tKINO-ULT3 KINO-KBN/SE-i2 KINO-DQM871-i1 KINO-DH610 KINO-QM770 KINO-QM670 KINO-QM57A KINO-HM551
	SBC Size (mm)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)	Mini-ITX (170 x 170)
Storage	Hard Drive	1 x 2.5" SATA HDD drive bay	1 x 2.5" SATA HDD drive bay	1 x 3.5" SATA HDD space
	CF Card/CFast	N/A	N/A	Refer to SBC
	SD Card	Refer to SBC	Refer to SBC	Refer to SBC
I/O Interfaces	PS2 (KB/MS)	N/A	N/A	Refer to SBC
	USB 3.2 Gen 1	Refer to SBC	Refer to SBC	Refer to SBC
	USB 2.0	Refer to SBC	Refer to SBC	Refer to SBC
	Ethernet	2	2	2
	COM Port	Refer to SBC	Refer to SBC	Refer to SBC
	LPT	Refer to SBC	Refer to SBC	Refer to SBC
	Display	Refer to SBC	Refer to SBC	Refer to SBC
	Resolution	Refer to SBC	Refer to SBC	Refer to SBC
	Audio	Refer to SBC	Refer to SBC	Refer to SBC
Expansions	Wireless	Refer to SBC	Refer to SBC	Refer to SBC
	PCI	N/A	N/A	N/A
	PCIe	N/A	N/A	1 x Full-height expansion slot
	PCIe Mini	Refer to SBC	Refer to SBC	Refer to SBC
Power	Others	1 x E-Window	N/A	N/A
	Power Input	12V DC	12V DC	90~264V AC
	Power Supply	12V DC	12V DC	ACE-A618C 180W ACE-A627A 270W
Reliability	Mounting	VESA 100, wall mount	VESA 100, wall mount	Desktop, wall mount
	Operating Temperature	-10°C~50°C	-10°C~50°C	0°C ~ 50°C
	Operating Shock	Half-sine wave 3G, 11ms 3 shocks per axis		
	Operating Vibration	MIL-STD-810F 514.5C-1		
Weight (Net/ Gross)	Weight (Net/ Gross)	1 kg/2 kg	1 kg/2 kg	2.5 kg/3.9 kg

* Optional items

** Systems with hard drive meet MIL-STD-810F 514.5C-1 specifications. SSD/CF systems meet MIL-STD-810F 514.5C-1 specifications.

Chassis Selection Guide

	Model No.	Type	Board Type		Max. Slots	Drive Capacity				Fan Spec.							
			SBC Slot	Motherboard		5.25" F.P.	3.5" F.P	2.5" Int	3.5" Int	4 cm	6 cm	8 cm	12 cm				
NEW	RACK-1150G	1U	PICMG 1.0 full-size/ PICMG 1.3 full-size		3	1			1	3							
	RACK-220G	2U	PICMG 1.0 full-size	*microATX, Mini-ITX	6	1	1		1			2					
	RACK-305G	4U	Full-size	*ATX, microATX, Mini-ITX	14	2	1		1		***2	2					
	RACK-360G	4U	Full-size	*ATX, microATX, Mini-ITX	14	2	1		1		***2		1				
	RACK-3000G	4U	Full-size	*ATX, microATX, Mini-ITX	14	3	2		1		***2	2					
	RACK-500AI	5U	Full-size		5		1		1			1					
	ECA-300			ATX, microATX	7	2		1	1								
	ECA-200			microATX	4			1	1								
	ECA-100			ATX, microATX	7			1	1								
	PAC-1000G		Full-size		6	1	1		1			1					
	PAC-106G		Full-size		6		1		1			1					
	PAC-1700G		Full-size		7	1	1		2			1					
	PAC-125G		Full-size		10	2	1		1			1					
NEW	PAC-53GH		Half-size		3			1									
	PAC-42GH		Half-size		4		△1		△1			1					
	PR-1500G		Half-size		5	◇1	1		1			1					
	PAC-400G		Half-size		5				△1			1					
	PAC-400AI		Half-size		5				△1			1					
	PAC-700G		Half-size		7	1	△1		1			1					
	Model No.	Indicators		Front Panel Control						Back Panel Control		PSU	Dimensions (mm)			Color	
		Power	HDD	Power	Reset	KB	USB	Keylock	COM	USB	COM		Depth	Height	Width	Black	White
NEW	RACK-1150G	○	○	○	○		2					1U	449	44	431	○	
	RACK-220G	○	○	○	○		2	○				PS/2	487.5	88	431	○	○
	RACK-305G	○	○	○	○	○	2	○				PS/2 or mini redundant	413	176	431	○	○
	RACK-360G	○	○	○	○	○	2	○				PS/2 or mini redundant	435.5	176	431	○	○
	RACK-3000G	○	○	○	○			○				PS/2 or mini redundant	520	176	431	○	○
	RACK-500AI	○	○	○	○		2					1U	440.2	221.3	110.6	(Navy Blue & Black)	
	ECA-300	○	○	○	○		2		6			1U	291	162	365	○	
	ECA-200	○	○	○	○		2		6			1U	310	162	310	○	
	ECA-100	○	○	○	○		2			4	2	1U	320	480.5	210		○
	PAC-1000G	○	○	○	○							PS/2	421	176	232	○	
	PAC-106G	○	○	○	○		2					1U	400	175.5	166		○
	PAC-1700G	○	○	○	○							PS/2	433	253.7	192.4	○	
	PAC-125G	○	○	○	○		2	○				PS/2	420	176	321		○
NEW	PAC-53GH	○	○	○	○		2					1U	218	200	95		○
	PAC-42GH	○	○	○	○		2					1U	269	230	140		○
	PR-1500G	○	○	○	○		2					1U	254	132	286		○
	PAC-400G	○	○	○	○		2					1U	269	230.5	140		○
	PAC-400AI	○	○	○	○		2					1U	269	230.5	140	(Navy Blue & Black)	
	PAC-700G	○	○	○	○		2	○				1U	279	176	321	○	

■ Rackmount chassis
■ Full-size wall mount chassis
■ Half-size wall mount chassis

* For ATX model
 *** Optional fans for ATX model
 ◇ Slim-type CD-ROM
 △ Please refer to datasheet for detail information

» Open Frame

Safety (ITE Standard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950

Safety (Medical Standard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601

EMI - Meets EN 55022, FCC Part 15, CISPR 22

Meets EN 61000-3-2, EN 61000-3-3 (PFC function)

EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

* For detailed specs, please refer to official certification

AC Input										
Product	Model No.	Watt AT/ATX PFC	Input Range	Output Current Range			Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+5 V	+12 V	-12 V				
	ACE-890A	86W AT -	85 ~ 264 VAC	10 A	2.5 A	0.5 A	70%	0°C ~ 50°C	CSA CE	152.4 x 89 x 39

» Redundant Type

AC Input													
Product	Model No.	Watt AT/ATX PFC	Input Range	Output Current Range						Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb				
	ACE-R4150AP	500W ATX PFC	90 ~ 264 VAC	20A (0A min.)	20A (0A min.)	40A (1A min.)	0.3 A (0A min.)	0.5 A (0A min.)	3 A	84%	0°C ~ 50°C	CB, UL, TUV, CCC, CE, FCC	150 × 84 × 190
	ACE-R4130AP	300W ATX PFC	90 ~ 264 VAC	18 A (1 A min.)	25 A (3 A min.)	16 A (2 A min.)	0.5A	0.5 A	2 A (0.1 A min.)	65%	0°C ~ 50°C	CB, UL, TUV, CCC, CE, FCC	150 × 84 × 190

» 1U/2U Type

Safety (ITE Standard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950

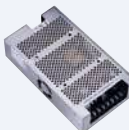
Safety (Medical Standard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601

EMI - Meets EN 55022, FCC Part 15, CISPR 22

Meets EN 61000-3-2, EN 61000-3-3 (PFC function)

EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

* For detailed specs, please refer to official certification

1U AC Input														
Products	Model No.	Watt AT/ ATX PFC	Input Range	Output Current Range						Efficiency	ErP	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb					
	ACE-A630C	300W ATX -	90 ~ 265 VAC	12 A (0 A)	14 A (0 A)	25 A (0.1 A)		0.5 A	3 A	 87%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-A622C	220W ATX -	90 ~ 264 VAC	10 A (0.1 A min.)	14 A (0.2 A min.)	14 A (0.6 A min.)		0.3 A	2.5 A	 85%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-A618C	180W ATX -	90 ~ 264 VAC	10 A (0.1 A min.)	14 A (0.2 A min.)	10 A (0.6 A min.)		0.3 A	2.5 A	 85%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-A615C	150W ATX -	90 ~ 264 VAC	10 A (0.1 A min.)	14 A (0.2 A min.)	10 A (0.6 A min.)		0.3 A	2.5 A	 85%	V	0°C ~ 50°C	CB/UL/ TUV/ CCC/ CE/FCC	150 x 81.5 x 40.5
	ACE-716AP	150W AT PFC	85 ~ 265 VAC		18 A (1 A min.)	4 A	0.5 A	1 A		75%		-20°C ~ 70°C	UL TUV CE	198 x 97 x 40.5
1U DC Input														
Products	Model No.	Watt AT/ ATX PFC	Input Range	Output Current Range						Efficiency	Operating Temperature	Safety	Dimensions (mm)	
			Voltage	+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb					
	ACE-A4520D	250W ATX -	24 VDC (18 ~ 36 VDC)	10 A	14 A	18 A (0.05A min.)		0.3 A	2.5 A	80%		0°C ~ 50°C	CB UL TUV CCC NEMKO CE FCC	150 x 81.5 x 40.5
	ACE-716C	150W AT -	24 VDC (19 ~ 30 VDC)		18 A (2 A min.)	4 A	0.5 A	1 A		70%		-20°C ~ 70°C	UL TUV CE	198 x 97 x 40.5

PS/2

Safety (ITE Standard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950

Safety (Medical Standard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601

EMI - Meets EN 55022, FCC Part 15, CISPR 22

Meets EN 61000-3-2, EN 61000-3-3 (PFC function)

EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

* For detailed specs, please refer to official certification

AC Input													
Product	Model No.	Watt ATX/ATX PFC	Input Range Voltage	Output Current Range						Efficiency	ErP	Operating Temperature	Safety
				+3.3 V	+5 V	+12 V	-5 V	-12 V	+5 Vsb				
	ACE-A160B	600W ATX PFC	90~264 VAC	25 A (0 A)	25 A (0.2 A)	V1: 16 A (0.05 A) V2: 16 A (0 A) V3: 16 A (0 A) V4: 16 A (0 A)	0.5 A (0 A)	0.5 A	4 A	 82%	v	0°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	Medical ACE-4840APM	400W ATX PFC	90 ~ 265 VAC	30 A (0.5 A min.)	30 A (0.3 A min.)	V1: 17 A (1 A min.) V2: 17 A (1 A min.)	0.3 A	0.8 A	2 A	68%		0°C ~ 50°C	CB / UL CCC / VDE
	ACE-A140B	400W ATX PFC	90 ~ 264 VAC	21 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A	3 A	 87%	v	-5°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-A140B-S	400W ATX PFC	90 ~ 264 VAC	21 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A	3 A	 87%	v	-5°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-A130C	300W ATX PFC	90 ~ 264 VAC	19 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A (0 A)	3 A (0 A)	 87%	v	0°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-A130C-S	300W ATX PFC	90 ~ 264 VAC	19 A (0 A)	16 A (0.2 A)	V1: 17 A (0.05 A) V2: 17 A (0 A)	0.1 A (0 A)	0.5 A (0 A)	3 A (0 A)	 87%	v	0°C ~ 50°C	CB / UL / TUV CCC / CE / FCC
	ACE-935AL	300W AT -	85 ~ 140 VAC 170 ~ 270 VAC		40 A (3 A min.)	8 A (0.1 A min.)	0.3 A	0.7 A		68%		0°C ~ 50°C	UL / CE

» Adapter Type

Safety (ITE Standard) - CB IEC 60950, UL 60950, CSA C 22.2 No. 60950, TUV EN 60950

Safety (Medical Standard) - CB IEC 60601, UL 60601, CSA C 22.2 No. 60601, TUV EN 60601

EMI - Meets EN 55022, FCC Part 15, CISPR 22

Meets EN 61000-3-2, EN 61000-3-3 (PFC function)

EMS - Meets EN 55024, EN 61000-4-2/3/4/5/6/8/11

* For detailed specs, please refer to official certification

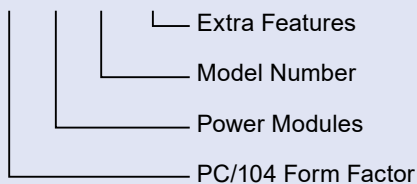
AC Input										
Product	Model No.	Watt	Input Range			Plug Type	Efficiency	Operating Temperature	Safety	Dimensions (mm)
			Voltage	+12 V	+19 V					
 	FSP150-ABAN3	150W	90~264 VAC	10 A	7.89A		87%	0°C ~ 40°C	UL/TUV CCC/CE/ GS/PSE/KC/ BSMI	75.6 x 151.3 x 25.4
	FSP120-AHAN3	120W	90~264 VAC	10 A			87%	0°C ~ 40°C	UL/TUV CCC/CE/ GS/PSE/KC/ BSMI	75.6 x 151.3 x 25.4
	FSP096-AHAN3	96W	90~264 VAC	8 A			88%	0°C ~ 40°C	UL/TUV/CCC/ CE/GS/PSE/KC/ BSMI/RCM	75.6 x 151.3 x 25.4
	FSP090-DBBN3	90W	90~264 VAC		4.74 A		88%	0°C ~ 40°C	UL/TUV/CCC/ CE/GS/PSE/ KC/BSMI/RCM/ PSE	51 x 129 x 30.9
	FSP065-RBBN3	65W	90~264 VAC		3.42 A		89.54%	0°C ~ 40°C	UL/TUV/CCC/ CE/BSMI/PSE/ PSB/GS/EAC/ NOM/RCM/ IRAM/Nrcan/ Nemko	46.3 x 108.3 x 30
	Medical 63040-010060-020	60W	90~264 VAC	5V			85%	0°C ~ 60°C	CB/UL/ TUV/CCC/ BSMI/CE/FCC	147 x 75 x 49
	FSP060-DHAN3	60W	90 ~ 264 VAC	5V			85%	0°C ~ 40°C	UL/TUV/CCC/ GS/PSE/RCM/ CE/KC /BSMI	62 x 110 x 31.5
	FSP036-RHBN3	36W	90 ~ 264 VAC	3 A			88.3%	0°C ~ 40°C	UL/TUV/CCC/ GS/CE/BSMI/ PSE/RCM/KC	37.8 x 89.8 x 27

» IDD & PM_P Series

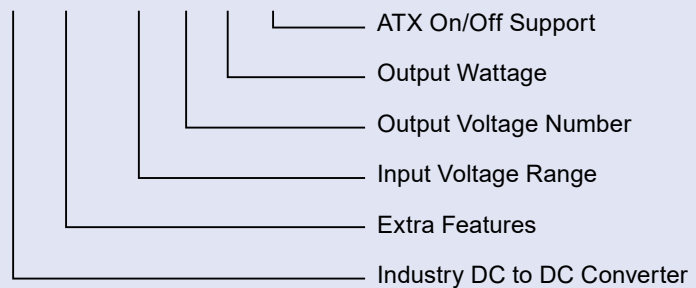
Model No.	Dimensions	Maximum Output Power	Input Voltage	Maximum Output Current						
				12V	5V	3.3V	-12V	5VSB	16V	20V
IDDV-6304140A	45 mm x 160 mm	140 W	6 ~ 30 V	4 A	10 A	10 A	0.15 A	1.5 A	-	-
IDD-9364120A	45 mm x 160 mm	120 W	9 ~ 36 V	4 A	10 A	8 A	0.3 A	2 A	-	-
IDD-241100	40 mm x 100 mm	100 W	24 V	8.3 A	-	-	-	-	-	-
IDD-936160	25 mm x 82 mm	60 W	9 ~ 36 V	5 A	-	-	-	-	-	-
PM-P006UPS	3.775" x 3.55"	65 W	6 ~ 36 V	4 A	10 A	8 A	-	1 A	-	-
IDD-936260A	40 mm x 100 mm	60 W	9 ~ 36 V	3 A	10 A	-	-	0.5 A	-	-
IDD-12250A	40 mm x 100 mm	50 W + 60 W	12 V	5 A	10 A	-	-	0.5 A	-	-

Naming Conventions:

PM-P xxx yy



IDD xx - 630 4 120 A



Output Power Calculation

$P \text{ (Wattage)} = V \text{ (Voltage)} \times I \text{ (Current)}$

$P_t = \text{Total Output Power}$

$I_1 = \text{Current of Output Voltage1}$

$I_n = \text{Current of Output Voltage n}$

$V_1 = \text{Output Voltage1}$

$V_n = \text{Output Voltage n}$

$P_t = V_1 \times I_1 + V_2 \times I_2 + \dots + V_n \times I_n$

P_t must be less than max. output power and individual output current must not exceed max. output current.

Dedicated Engineering Team - Professional

Our dedicated team offers application-specific integrated solutions and will design a customized product that will put you out in front of the competition.

Our solutions include standard/non-standard voltages, isolated/non-isolated, any form factor, power sequencing, battery chargers, electromechanical interference protection, thermal management, remote on/off and I/O interface.



Advanced Test Equipment – Precision & Reliability



Timing/Noise Analyzer Chroma 6011



Electronic Load Chroma 6312 Series



Power Analyzer Chroma 6632



秉誠智能科技

Allink Intelligent Technology