SUPERMICRO

A1 Intel® Atom® C2000

High Density, Low Power Solutions *(Rangley & Avoton, FCBGA 1283)*

Server Solutions

SYS-5018A-LTN4 1U • 9.8" depth

- Up to 2 DIMMs, 16GB of DDR3 ECC SODIMM 1666MHz
- 2x 3.5" or optional 4x 2.5" internal SATA2 and SATA3 Drive Bays
- 1x PCI-E 2.0 x8 Slot, 2x USB 3.0, 2x USB 2.0, VGA, COM,
- Quad GbE LAN ports, IPMI 2.0 on Dedicated LAN port
- 200W Gold Level Low-Noise Power Supply

Intel® Atom® C2758
8 cores | 20W

SYS-5028A-TN4 Mini Tower

- 4 DIMMs / 64GB, 16GB of DDR3 ECC SODIMM 1333MHz
- 4x 3.5" hot-swap SATA trays: 2x 2.5" internal HDD Drive Bays
- 1 PCI-E 2.0 x8 Slot, 2 USB 3.0, 2 USB 2.0, VGA, COM,
- Quad GbE LAN ports, IPMI 2.0 on Dedicated LAN port
- 250W Bronze Level Low-Noise Power Supply

Intel® Atom® C2550
4 cores | 14W

Intel® Atom® C2758
8 cores | 20W

Intel® Atom® C2750
8 cores | 20W

Intel® Atom® C2758
8 cores | 20W

Motherboards Solutions

Mini-ITX			Proprietary	mATX
A1SAi-2550F/2750F	**A1SRi-2358F**	**A1SRi-2558F/2758F**	**A1SA7-2550F/2750F**	**A1SAM-2550F/2750F**
-2550F: C2550 | 4 cores | 14W **-2750F:** C2750 | 8 cores | 20W	C2358 | 2 cores | 7W	**-2558F:** C2558 | 4 cores | 15W **-2758F:** C2758 | 8 cores | 20W	**-2550F:** C2550 | 4 cores | 14W **-2750F:** C2750 | 8 cores | 20W	**-2550F:** C2550 | 4 cores | 14W **-2750F:** C2750 | 8 cores | 20W

Up to 4 cores | 80W

Up to 4 cores | 80W

Up to 4 cores | 80W

Intel® Xeon® E3-1500 v5

Pro Graphics P580 GTe4 *(FCBGA 1440)*

X11SSH-GF-1585

X11SSH-GF-1585L

X11SSH-GTF-1585

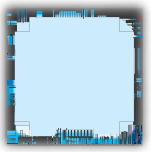
X11SSH-GTF-1585L

X11SSV-M4

X11SSV-M4F

Intel® Core i7, i5, i3 Single Processor

Higher Performance with improved graphics and better power efficiency *(Skylake-S/Kabylake-S)*



The 7th/6th Gen Intel® Core processors deliver significant improvements in graphics performance that offers stunning visuals for gaming as well as compelling 4K content creation and media playback via AVX 2.0. Offers enhanced security through AES instructions for faster encryption as well as BIOS/FW protection, new I/O connectivity and multiple independent display capabilities.

SYS-1019S-M2 Compact 1U • 16.9" depth

- Up to 64GB Unbuffered non-ECC, DDR4-2400MHz in 4 DIMM slots
- Intel® 7th/6th Generation Core i7/i5/i3 series, Intel® Celeron® Intel® Pentium®
- Remote management via IPMI or vPro | Q170
- 2 Gigabit LAN ports, 2x DP, DVI-I, 3 independent displays
- Full Height and Full Length add on card support
- Power redundancy or BBP® support

SYS-5019S-M2 1U • 19.85" depth

- Up to 4 DIMMs, 64 GB of 2400MHz DDR4 UDIMM ECC/NON-ECC
- Intel® Xeon E3-1200 v6/v5 & 7th/6th Gen Intel® Core™ i7, i5, i3, Pentium®, Celeron® processor in LGA1151 | C236
- 2 DP, DVI-I, total 3x independent display
- 4x 3.5" SATA3 hot-swap drive bays
- Intel® vPro™ and AMT
- 2 Gigabit LAN with AMT
- 1 PCI-E 3.0 x16 FH, FL slot
- 7 year life cycle

SYS-5029S-TN2 Mini Tower

- Compact Mini Tower 7th/6th Gen. Intel i7/i5/i3 Core Server
- 32GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots
- 7th/6th Generation Intel® Core i7/i5/i3, Pentium and Celeron Processor in LGA1151 Socket | Q170
- Up to 4 Hot-Swap 3.5" SATA3 HDD, 1 internal 2.5" fixed HDD and 1 M.2 (M key 2242/80 PCI-E 3.0 x4)
- 2 Gigabit LAN ports
- Embedded long life
- Quiet Operation
- 1 slim DVD-ROM drive bay (shared with 1 internal 2.5" drive bay)

X11SSQ/L

4 cores | 91W

X11SSZ-QF

4 cores | 91W

X11SSZ-TLN4F/F

4 cores | 91W

X11SSV-Q

4 cores | 91W

X11SSV-LVDS

4 cores | 91W

Intel® Atom® & Intel® Pentium

(Apollo Lake)

Server Solutions

SYS-E50-9AP-WIFI Compact

- Built-in Wifi Antenna
- IP51 with plastic chassis design for water/dust proof
- Cable-less design for increased reliability and cost efficiency
- Fanless design with palm-size dimension

Atom® x5-E3940
4 cores | 9.5W

Atom® x5-E3930
2 cores | 6.5W

Atom® x5-E3940
4 cores | 9.5W

Motherboard Solutions

A2SAP-E/H/L

A2SAP-H/-E: 4 cores | 9.5W
A2SAP-L: 2 cores | 6.5W

A2SAN-E/H/L

A2SAN-H/-E: 4 cores | 9.5W
A2SAN-L: 2 cores | 6.5W

A2SAN-E/H/L-WOHS

A2SAN-H/E-WOHS: 4 cores | 9.5W
A2SAN-L-WOHS: 2 cores | 6.5W

A2SAV

4 cores | 9.5W

A2SAV(-2C)-L

A2SAV-L: 4 cores | 9.5W
A2SAV-2C-L: 2 cores | 6.5W

X11 Intel® Pentium® Processor

High Density, Low Power Solutions *(N4200, FCBGA 1296 & N3700, FCBGA 1170)*

Supermicro X11 Generation of Motherboards/Servers support Intel Atom processor E3900 and Pentium processor N4200 (Formerly Apollo Lake) series **system-on-chip (SoC)** Processors.

Based on Goldmont architecture and utilizing Intel's industry-leading 14 nm process technology, the Supermicro high density, low-power Motherboard/Server solutions provide great options for value-segment buyers who need basic functionality at an affordable price. The solutions are ideal for everyday computing like basic productivity, browsing visually stunning webpages, streaming 4K Ultra HD video, and editing photos. Empowers real-time computing in digital surveillance, new in-vehicle experiences, advancements in industrial and office automation, new solutions for retail and medical, and more.

N4200 Server Solutions

SYS-E100-9APP 3.5" SBC

- Intel® Pentium™ processor N4200, Single Socket FCBGA 1296
- 1 M.2 2280 B-Key for SATA SSD
- 1 non-ECC DDR3L SODIMM up to 8GB
- 1 Full size Mini-PCI-E (USB 2.0, PCI-E 2.0 x 1)
- Dual GbE LAN ports via Intel I210-AT
- 1 HDMI, 1 VGA, Intel® HD Graphics

Intel® Pentium™ N4200
4 cores | 6W

N4200 Motherboard Solutions

X11SAN

with heatsink

4 cores | 6W

X11SAN-WOHS

without heatsink

4 cores | 6W

X11SAA

4 cores | 6W

N3700 Server Solutions

SYS-E200-9B Mini-ITX

- Intel® Pentium® Processor N3700, Quad-Core (6W, 4C); Socket FCBGA 1170
- System-on-Chip
- 1x 2.5" internal drive bay
- Up to 8GB 1600MHz DDR3 Non-ECC SO-DIMM in 2 socket
- 1 SuperDOM, 1 mSATA slot, 1 TPM 1.2 header
- I/O ports: 4 GbE, 1 HDMI, 1 Display Port, 1 VGA, 1x serial port

Intel® Pentium™ N3700
4 cores | 6W

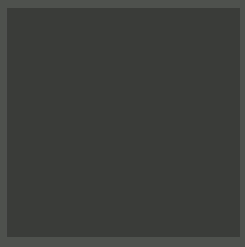
N3700 Motherboard Solutions

X11SBA-F

4 cores | 6W

X11SBA-LN4F

4 cores | 6W



X10 Intel® Xeon® E5-2600 v4/v3 Processors

Dual Processor System Solutions *(Broadwell)*

Broadwell Support

All X10 Dual Processor motherboards now support Intel's latest E5-2600 v4 series (Broadwell) processor for even faster performance. Coupled with the long life C612 PCH that provides up to 7 years of extended availability, the E5-2600 v4 processor brings unparalleled performance, efficiency, scalability, and flexibility to handle the most demanding of embedded and embedded cloud workloads for years to come.

NVMe Capability

Many X10 models now support U.2 (NVMe) storage capabilities for unmatched performance (throughput and latency), true hot-swap capability, and cost-effectiveness that beats using traditional add-on card based flash storage solutions.

Server Solutions

Intel® Xeon® E5-2600
22 cores | 145W

SYS-6018R-MD Compact • 16.9"

- Short-Depth Chassis for X11/X10 DP Solutions
- 500W Platinum Level High-efficiency Power Supply
- 1x 3.5" or 4x 2.5" HDD
- 4x 40x56mm PWM fans
- 2 Full-Height I/O Expansion slot

Motherboard Solutions

X10DRD-i(N)T 22 cores | 145W

- Dual E5-2600 v4/v3 CPUs up to 145W
- 8 DIMM DDR4 2133MHz (Up to 1TB)
- 10 SATA 3.0 HDD/SSD ports
- 4 PCI-E 3.0 x16 + 3 PCI-E 3.0 x8 + 1 PCI-E 3.0 x4 in x8 + 1 PCI-E 2.0 x4 in x8
- 7 USB 3.0, 2 SuperDOM, TPM support
- 13.05" x 10.5" ATX Form Factor
- 10 SATA3 HDD/SDD ports, Optional dual NVMe Ports ***(-N Option)***

X10DRL-i

22 cores | 145W

X10DAi/C

22 cores | 145W

X10DAi/C

22 cores | 145W

X10DAi/C

22 cores | 145W

X10DRL-CT

22 cores | 145W

X10DDW-i

22 cores | 145W

X10DRD-iTP

22 cores | 145W

X10DRC-T4+/LN4+

22 cores | 145W

X10DRi(-T)

22 cores | 145W

X10DRi-T4+/LN4+

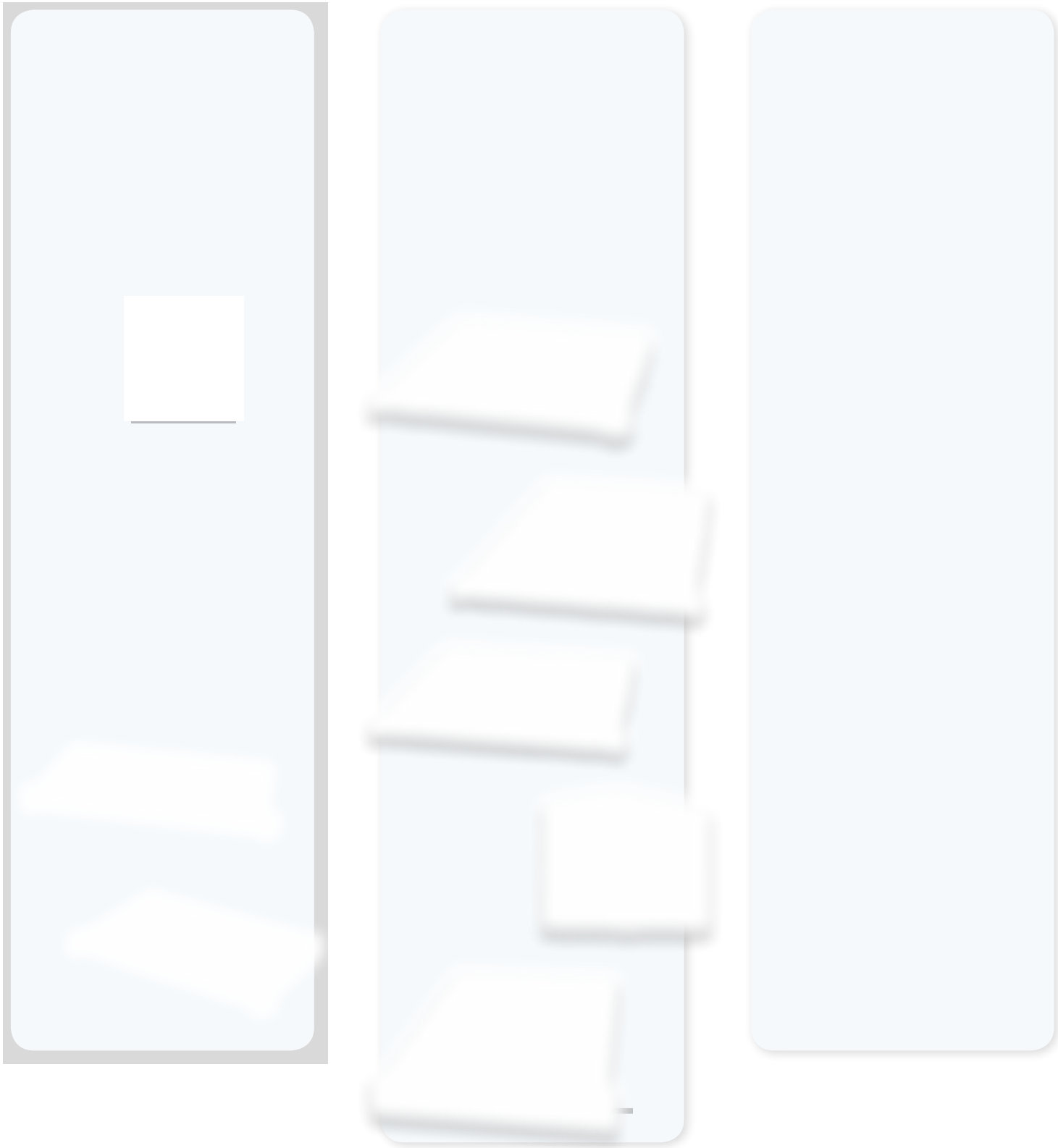
22 cores | 145W

X10DRW-i(T)

22 cores | 145W

X10DRX

22 cores | 145W



	Denverton 8-Core, 8 GbE RJ45, Dual GbE SFP, Intel® Quick Assist Technology	**Denverton** 8-Core, 8 GbE RJ45 Intel® Quick Assist Technology	**Denverton** 4-Core, 8 GbE RJ45, Dual GbE SFP, Intel® Quick Assist Technology	**Denverton** 4-Core, 8 GbE RJ45 Intel® Quick Assist Technology
MODEL	**A2SDV-8C-LN10PF**	**A2SDV-8C-LN8F**	**A2SDV-4C-LN10PF**	**A2SDV-4C-LN8F**
Processor	Intel® Atom® Processor C3758. Single Socket FCBGA1310 supported, CPU TDP support 25W		Intel® Atom® Processor C3558. Single Socket FCBGA1310 supported, CPU TDP support 16W	
Chipset/System Bus	System on Chip			
Form Factor	Flex ATX 9.0" x 7.25" (22.86cm x 18.42cm)			
Memory Capacity & Slots	Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots			
Expansion Slots	1 PCI-E 3.0 x4 Option for Slot 6 or Slot 7 1 M.2 M-Key SATA/PCI-E 3.0 x2, 2242/2280 1 M.2 B-Key SATA/PCI-E 3.0 x2/USB 3.0, 3042/2280		1 PCI-E 3.0 up to x2 (in x4 slot) **Number of PCI-E lane (option for Slot 6 or Slot 7) is configurable in BIOS: 0 or 2. PCI-E expansion slot is disabled when number of SATA ports is set to 3.* M.2 Interface: 1 SATA/PCI-E 3.0 x2/ USB 3.0 M.2 Form Factor: 3042, 2280 M.2 Key: B-Key	1 PCI-E 3.0 x2 (in x4 slot) Option for Slot 6 or Slot 7 M.2 Interface: 1 SATA/PCI-E 3.0 x2/ USB 3.0 M.2 Form Factor: 3042, 2280 M.2 Key: B-Key
Onboard RAID Controller	SoC controller for 5 SATA3 (6 Gbps) ports;	SoC controller for 5 SATA3 (6 Gbps) ports;	Up to 3 SATA3(6 Gbps) ports via SoC ** Number of SATA ports is configurable in BIOS: 1 or 3. One SATA port is available when PCI-E x2 expansion slot is enabled.*	SoC controller for 3 SATA3 (6 Gbps) ports;
Onboard LAN	Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4 Dual LAN with Intel® I210-IS 1G SFP	Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4	Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4 Dual LAN with Intel® I210-IS 1G SFP	Quad LAN with Intel® C3000 SoC Quad LAN with Intel® Ethernet Controller I350-AM4
Onboard VGA/ Display Ports	1 VGA port, 1 Aspeed AST2400 BMC			
USB Ports	2 USB 2.0 ports (2 headers), 3 USB 3.0 ports (2 rear + 1 Type A)			
Other Onboard I/O Devices	TPM Header, 1 COM Port (1 header),			
Manageability	IPMI2.0, NMI, SuperDoctor® 5, Watchdog			
Health Monitoring	+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 5 -fan status, Chassis intrusion header, VBAT			
Thermal Control	5x 4-pin fan headers (up to 5 fans), 5 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control			
Other Features	4-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, Intel® QuickAssist Technology , M.2 NGFF connector, RoHS, UID			

	Denverton 2-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology	**Denverton** 4-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology	**Denverton** 8-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology	**Denverton** 12-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology	**Denverton** 16-Core, Quad GbE LAN, IPMI, Intel® Quick Assist Technology,
MODEL	**A2SDi-2C-HLN4F**	**A2SDi-4C-HLN4F**	**A2SDi-8C-HLN4F A2SDi-8C+-HLN4F**	**A2SDi-12C-HLN4F**	**A2SDi-16C-HLN4F A2SDi-16C+-HLN4F**
Processor	Intel® Atom™ Processor C3338. Single Socket FCBGA1310 supported, CPU TDP support 9W	Intel® Atom™ Processor C3558. Single Socket FCBGA1310 supported, CPU TDP support 16W	Intel® Atom™ Processor C3758. Single Socket FCBGA1310 supported, CPU TDP support 25W	Intel® Atom™ Processor C3858. Single Socket FCBGA1310 supported, CPU TDP support 25W	Intel® Atom™ Processor C3958. Single Socket FCBGA1310 supported, CPU TDP support 31W
Chipset/System Bus	System on Chip				
Form Factor	Mini-ITX, 6.7" x 6.7" (17.02cm x 17.02cm)				
Memory Capacity & Slots	Up to 128GB Register DIMM RDIMM, DDR4-1866MHz Or 32GB Unbuffered ECC/ non-ECC UDIMM, DDR4-1866MHz, in 2 DIMM slots	Up to 256GB Registered ECC RDIMM, DDR4-2133MHz Or 64GB Unbuffered ECC/ non-ECC UDIMM, DDR4-2133MHz, in 4 DIMM slots	Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots		
Expansion Slots	1 PCI-E 3.0 up to x4 (in x4 slot) **Number of PCI-E lane is configurable via BIOS setup: 0, 2, or 4. Total combined PCI-E lanes and SATA ports is up to 8.*	1 PCI-E 3.0 up to x4 (in x4 slot) **Number of PCI-E lane is configurable via BIOS setup: 0, 2, or 4. Total combined PCI-E lanes and SATA ports is up to 8.* ***M.2 Interface:*** PCI-E 3.0 x2 and SATA ***M.2 Form Factor:*** 2242, 2280 ***M.2 Key:*** M-Key	1 PCI-E 3.0 x4 ***M.2 Interface:*** PCI-E 3.0 x2 and SATA ***M.2 Form Factor:*** 2242, 2280 ***M.2 Key:*** M-Key		
Onboard RAID Controller	Up to 8 SATA3(6 Gbps) ports via SoC. *Number of SATA ports is configurable via BIOS setup: 4, 6, or 8. Total combined PCI-E lanes and SATA ports is up to 8.	Up to 8 SATA3(6 Gbps) ports via SoC. *Number of SATA ports is configurable via BIOS setup: 4, 6, or 8. Total combined PCI-E lanes and SATA ports is up to 8.	SoC controller for 12 SATA3 (6 Gbps) ports;		
Onboard LAN	Quad LAN with Intel® C3000 SoC, GbE				
Onboard VGA/ Display Ports	1 VGA port(s), 1 Aspeed AST2400 BMC,				
USB Ports	4 USB 2.0 ports (2 rear + 2 via header(s)), 1 USB 3.0 ports (via header(s) + 1 Type A)				
Other Onboard I/O Devices	1 Port SuperDOM, TPM Header, 1 COM Ports (1 header),				
Manageability	IPMI2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog				
Health Monitoring	+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 4 -fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT				
Thermal Control	4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors				
Other Features	12V DC or ATX Power Source, 4-pin 12v DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, RoHS, SDDC, System level control, UID, WOL				

	Denverton 8C/16C-Core, Dual/Quad 10GbE LAN, Intel® QAT, IPMI	Denverton 8-Core, Quad 10GbE LAN, Intel® QAT,IPMI	Denverton 8-Core, Quad 10GbE LAN, Intel® QAT,IPMI	Denverton 12-Core, Quad 10GbE LAN, Intel® QAT, IPMI	Denverton 16-Core Quad 10GbE LAN, Intel® QAT, IPMI
MODEL	**A2SDi-TP8F A2SDi-LN4F**	**A2SDi-H-TP4F A2SDi-H-TF**	**A2SDV-8C-TLN5F**	**A2SDV-12C+-TLN5F**	**A2SDV-16C-TLN5F**
Processor	Intel® Atom® Processor C3858/C3850 Single Socket FCBGA1310 supported, CPU TDP support 25W	Intel® Atom® Processor C3958/C3758, Single Socket FCBGA1310 supported, CPU TDP support 31W/25W	Intel Atom Processor C3708, Single Socket FCBGA1310 supported, CPU TDP support 17W	Intel® Atom™ Processor C3858. Single Socket FCBGA1310 supported, CPU TDP support 25W	Intel® Atom™ Processor C3958. Single Socket FCBGA1310 supported, CPU TDP support 31W
Chipset/System Bus	System on Chip				
Form Factor	Mini-ITX, 6.7" x 6.7" (17.02cm x 17.02cm)		Flex ATX 9.0" x 7.25" (22.86cm x 18.42cm)		
Memory Capacity & Slots	Up to 64GB Unbuffered ECC/ non-ECC SO-DIMM, DDR4-2400MHz, in 4 DIMM slots	Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/ non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots	Up to 256GB Registered ECC RDIMM, DDR4-2400MHz Or 64GB Unbuffered ECC/non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots		
Expansion Slots	1 PCI-E 3.0 x4 1 miniPCI-E with mSATA supports (half card only) ***M.2 Interface:*** PCI-E 3.0 x4 and SATA ***M.2 Form Factor:*** 2242, 2280 ***M.2 Key:*** M-Key	1 PCI-E 3.0 x4 ***M.2 Interface:*** PCI-E 3.0 x2 and SATA ***M.2 Form Factor:*** 2242, 2280 ***M.2 Key:*** M-Key	1 PCI-E 3.0 x8 Option for Slot 6 or Slot 7 ***M.2 Interface:*** 1 PCI-E 3.0 x4 and 1 SATA/PCI-E 3.0 x2 and 1 SATA/USB 3.0 ***M.2 Form Factor:*** 2242/2280/3042 ***M.2 Key:*** M-Key, B-Key		
Onboard RAID Controller	SoC controller for 4 SATA3 (6 Gbps) ports;	SoC controller for 12 SATA3 (6 Gbps) ports; 4 SATA3 ports, 2 MiniSAS HD ports	SoC controller for 2 SATA3 (6 Gbps) ports;		
Onboard LAN	Quad LAN with Intel® C3000 SoC 2 10G BaseT, 2 10Gb SFP+ **LN4F:** Quad LAN with Intel® Ethernet Controller I350-AM4 GbE	Quad LAN with Intel® C3000 SoC 2 10G BaseT, 2 10Gb SFP+ **-TF:** 2 10Gb SFP+	Quad LAN with 10GBase-T with Intel® C3000 SoC Single LAN with Intel® i210 Gigabit Ethernet Controller		
Onboard VGA/ Display Ports	1 VGA port(s), 1 Aspeed AST2400 BMC				
USB Ports	4 USB 2.0 ports (4 headers), 2 USB 3.0 ports (2 rear)	4 USB 2.0 ports (2 rear + 2 headers), 1 USB 3.0 ports (+ 1 Type A)	2 USB 2.0 ports (+ 2 via header(s)), 5 USB 3.0 ports (4 rear via header(s) + 1 Type A)		
Other Onboard I/O Devices	1 Port SuperDOM, TPM Header, 1 COM Ports (1 header),		TPM Header, 1 COM Ports (1 header), 1 COM Port in RJ45 Socket,		
Manageability	IPMI2.0, KVM with dedicated LAN, NMI, SuperDoctor® 5, Watchdog		IPMI2.0, NMI, SuperDoctor® 5, Watchdog		
Health Monitoring	+1.8V, +12V, +5V, 1.05 (PCH), 1.2V (VDIMM), 4 -fan status, 4 fans with tachometer monitoring, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT, VCGI		+12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 1.2V (VDIMM), 3.3V standby, 6 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control, System temperature, VBAT		
Thermal Control	4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Dual Cooling Zone, Fan speed control, Overheat LED indication, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors		6x 4-pin fan headers (up to 6 fans), 6 fans with tachometer status monitoring, Dual Cooling Zone, Fan speed control, Pulse Width Modulated (PWM) fan connectors, Status monitoring for speed control, Support 3-pin fans (w/o speed control), System level control, Thermal control tachometer fan connectors		
Other Features	12V DC or ATX Power Source, 4-pin 12v DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Innovation Engine, RoHS, SDDC, System level control, UID, WOL		12V DC or ATX Power Source, 4-pin 12v DC power connector, ATX Power connector, Chassis intrusion detection, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Dual Cooling Zones, Innovation Engine, Intel® QuickAssist Technology, M.2 NGFF connector, RoHS, SDDC, System level control, UID, WOL		

Rangeley
3 pairs LAN bypass, Intel® QAT, uATX

Apollo Lake
E3940/E3930, Mini-ITX

Apollo Lake
Pentium N4200, Mini-ITX

Apollo Lake
Pentium N4200, 3.5" SBC

MODEL	A1SRM-LN7F-2758 A1SRM-LN7F-2358	A2SAV A2SAV-L A2SAV-2C-L	X11SAA	X11SAN X11SAN-WOHS
Processor	Intel® Atom® Processor C2758 (8C/20W) or C2358 (2C/7W) Socket FCBGA1283 CPU	**A2SAV(-L):** Intel® Atom™ Processor x5-E3940. Socket FCBGA1296 supported **A2SAV-2C-L:** Intel® Atom™ Processor x5-E3930, Single Socket FCBGA1296 supported, CPU TDP support 6.5W	Intel® Pentium™ Processor N4200. Socket FCBGA1296 supported	Intel® Pentium™ Processor N4200. Single Socket FCBGA1296 supported, CPU TDP support 6W
Chipset/System Bus	System on Chip			
Form Factor	MicroATX 8.0" x 9.6"	Mini-ITX, 6.7" x 6.7" (17.02cm x 17.02cm)		3.5" SBC, 5.7" x 4.0" (14.6cm x 10.16cm)
Memory Capacity & Slots	Up to 64GB ECC/Non ECC UDIMM in 4 slots (-2358 up to 16GB in 2 slots)	Up to 8GB 1866MHz DDR3L Non-ECC SO-DIMM in 1 socket	Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3-1866MHz, in 1 DIMM slots	
Expansion Slots	1 PCI-E 2.0 x4 (in x8 slot)	1 PCI-E 2.0 x2 (in x8 slot), ***M.2 Interface:*** PCI-E 2.0 x2 ***M.2 Form Factor:*** 2242, 2280 **A2SAV:** 1x Mini-PCI-E with mSATA	1 PCI-E 2.0 x2 (in x8 slot), 1x Mini-PCI-E with mSATA ***M.2 Interface:*** PCI-E 2.0 x2 ***M.2 Form Factor:*** 2242, 2280	1 Full size Mini-PCI-E (USB 2.0 1,PCI-E Gen2 x 1), 1 M.2 2280 B-Key for SATA or PCI-E SSD (2242/3042 B-key M.2 module is supported by extender bracket) ***M.2 Interface:*** SATA and PCI-E 2.0 x1 and USB 2.0 ***M.2 Form Factor:*** 2280 ***M.2 Key:*** B-Key
Onboard RAID Controller	SoC controller for 4 SATA2 (3 Gbps) ports; 2 SATA3 (6 Gbps)	SoC controller for 2 SATA3 (6 Gbps) ports; **A2SAV:** Marvel 88SE9230 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10	SoC controller for 2 SATA3 (6 Gbps) ports; Marvel 88SE9230 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,10	SoC controller for 1 SATA3 (6 Gbps) port
Onboard LAN	Quad GbE LAN (Intel® i354) Dual GbE LAN (Intel® i350-AM2), Single GbE LAN (Intel® i210-AT)	Dual LAN with Intel® Ethernet Controller I210-AT	Dual LAN with Intel® Ethernet Controller I210-AT	Dual LAN with Intel® Ethernet Controller I210-AT
Onboard VGA/ Display Ports	1 VGA via Aspeed AST2400 BMC	1 DP (DisplayPort) port(s), 1 HDMI port(s), 1 VGA port(s), 1 eDP (Embedded DisplayPort) port(s), 1 Intel® HD Graphics		1 VGA port(s), 1 LVDS port(s), 1 HDMI port(s), 1 Intel® HD Graphics,
USB Ports	7 USB 2.0 ports (4 rear + 2 via headers + 1 Type A)	4 USB 2.0 ports (2 rear + 2 via header(s)) **A2SAV:** + 1 Type A, 2 USB 3.0 ports (2 rear via header(s))	8 USB 2.0 ports (2 rear + 5 via header(s) + 1 Type A), 2 USB 3.0 ports (2 rear via header(s))	4 USB 2.0 ports (+ 4 via header(s)), 2 USB 3.0 ports (2 rear via header(s)), 1 USB 3.1 ports (+ 1 Type C)
Other Onboard I/O Devices	1 SATA DOM power connector 2 fast UART 16550 serial; TPM 1.2 Header, 1SuperDOM, 1 mSATA slot	1 Port SuperDOM, 3 COM Ports (1 rear, 2 headers), 1x COM in RJ45, 1X COM in RS232, and 1X COM in RS485. **A2SAV:** ALC 888S HD Audio,	1 Port SuperDOM, ALC 888S HD Audio, TPM Header, 3 COM Ports (1 rear, 2 headers), 1x COM in RJ45, 1X COM in RS232, and 1X COM in RS485.	ALC 888S HD Audio, TPM 2.0 Chip, 4 COM Ports (4 headers), (2 RS232, 2 RS232/422/485, RS-485 supports Auto flow control), 1 HD Audio header (Mic-in/Line-Out) ,1 8-bit GPIO header, 1 SMBus header ,1 panel backlight power header ,1 speaker ,1 system Fan
Manageability	IPMI2.0, SuperDoctor 5, Watchdog	SuperDoctor® 5, Watchdog	SuperDoctor® 5, Watchdog	SuperDoctor® 5, Watchdog
Health Monitoring	Monitors CPU voltages, +1.8V, +12V, +3.3V, +5V, +5V standby and total of three 4-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header	**A2SAV:** +1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control **A2SAV-L/A2SAV-2C-L/-L:** +12V, +5V, +5V standby	+1.8V, +12V, +3.3V, +5V, +5V standby, Monitors CPU voltages, System level control	+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI
Thermal Control	3 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors	2x 4-pin fan headers (up to 2 fans), Fan speed control, Low noise fan speed control, PWM fan speed control, System level control, Thermal control tachometer fan connectors		1x 4-pin fan header (up to 1 fan)
Other Features	4-pin 12v DC power connector, ACPI power management, ATX Poawer connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® QuickAssist Technology , System level control, UID, WOL ,0°C -60°C operating temperature	4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL	4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL	**X11SAN:** 0°C -60°C operating temperature, with heatsink **X11SAN-WOHS:** 0°C -60°C operating temperature, without heatsink 4-pin 12v DC power connector, ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL, Force power on by jumper

	Apollo Lake x5-E3940/x5-E3930 2.5" Pico ITX	**Apollo Lake** x5-E3940/x5-E3930 3.5" SBC	**Braswell** SoC, Quad LAN, IPMI mini-ITX	**Braswell** Embedded Low Power

MODEL	A2SAP-H A2SAP-E A2SAP-L	A2SAN-H(-WOHS) A2SAN-E(-WOHS) A2SAN-L(-WOHS)	X11SBA-LN4F X11SBA-F	X9SCAA X9SCAA-L
Processor	**-H/-E:** Intel® Atom™ Processor x5-E3940, Single Socket FCBGA1296 supported, CPU TDP support 9.5W **-L:** Intel® Atom™ Processor x5-E3930, Single Socket FCBGA1296 supported, CPU TDP support 6.5W	**-H/-E:** Intel® Atom™ Processor x5-E3940, Single Socket FCBGA1296 supported, CPU TDP support 9.5W **-L:** Intel® Atom™ Processor x5-E3930, Single Socket FCBGA1296 supported, CPU TDP support 6.5W	Intel® Pentium® Processor N3700 Socket FCBGA1170 supported; CPU TDP support 6W 1.6-2.4GHz 2MB	Intel® Atom® Processor N2800. Socket FCBGA559 supported, CPU TDP support 6.5W
Chipset/System Bus	System on Chip			Intel® NM10 Express
Form Factor	Pico-ITX 2.5" SBC , 4" x 2.83" (10.16cm x 7.19cm)	3.5" SBC, 5.7" x 4.0" (14.6cm x 10.16cm)	Mini-ITX 6.7" x 6.7"	Mini-ITX
Memory Capacity & Slots	Up to 8GB Unbuffered non-ECC SO-DIMM, DDR3-1866MHz, in 1 DIMM slots		8GB Unbuffered non-ECC SO-DIMM, DDR3-1600MHz, in 2 DIMM slots	4GB Unbuffered non-ECC SO-DIMM, DDR3-1066MHz, in 2 DIMM slots
Expansion Slots	1 Half size Mini-PCI-E (USB 2.0 x 1, PCI-E Gen2 x 1) 1 SMCI EI/O (1 DP/HDMI, 2 PCI-E x1, 2 USB 2.0, LPC, SATA3, SMBus, Power) ***M.2 Interface:*** SATA and PCI-E 2.0 x1 and USB 2.0 ***M.2 Form Factor:*** 2242, 3042 ***M.2 Key:*** B-Key	1 x Full size Mini-PCI-E (USB 2.0 x 1,PCI-E Gen2 x 1), 1 x M.2 2280 B-Key for SATA or PCI-E SSD (2242/3042 B-key M.2 module is supported by extender bracket) ***M.2 Interface:*** SATA and PCI-E 2.0 x1 and USB 2.0 ***M.2 Form Factor:*** 2280 ***M.2 Key:*** B-Key	1 PCI-E 2.0 x1 (in x8 slot) 1 Mini-PCI-E with mSATA support	1 - 5V PCI 32bit **X9SCAA:** Mini-PCI-E with mSATA
Onboard RAID Controller	SoC controller for 1 SATA3 (6 Gbps) port **-H:** without SATA port **-E/L** 1 SATA3 port	SoC controller for 1 SATA3 (6 Gbps) port	SoC controller for 2 SATA3 (6 Gbps) ports	Intel® NM10 Express controller for 2 SATA2 (3 Gbps) ports;
Onboard LAN	Dual LAN with Intel® Ethernet Controller I210IT	Dual LAN with Intel® Ethernet Controller I210IT	**-LN4F:** Quad GbE LAN with Intel® i210AT **-F:** Dual GbE LAN with Intel® i210AT	Dual LAN with Intel® 82574L Ethernet Controller
Onboard VGA/ Display Ports	1 Intel® HD Graphics, 1 Dual channel 48-bit LVDS(max. resolution up to 1920x1200@60Hz), HDMI(max. resolution up to 3840x2160@30Hz)	1 VGA port(s), 1 LVDS port(s), 1 HDMI port(s), 1 Intel® HD Graphics,	1 DP (DisplayPort) 1 HDMI Intel® HD Graphics 1 Aspeed AST2400 BMC VGA Port	1 port, 1 port, 1 port, 1 Intel® GMA 3650
USB Ports	2 USB 3.0 ports (rear I/O) **-E/-L:** 2 USB 2.0 ports (+ 2 via header(s))	4 USB 2.0 ports (+ 4 via header(s)), 2 USB 3.0 ports (rear I/O) **-H:** 1 USB 3.1 ports (+ 1 Type C)	2 USB 3.0 ports (2 rear) 7 USB 2.0 ports (2 rear + 4 via headers + 1 Type A)	6 USB 2.0 ports (2 rear + 4 headers), **X9SCAA:** 2 USB 3.0 ports (2 rear)
Other Onboard I/O Devices	**-H:** 1 x lockable DC Jack 1 x Stackable pin header A (34P): Power/ Reset button, HDD/ Power LED, 8-bit GPIO,2 USB 2.0 1 x Stackable pin header B (32P):2 RS232/422/485, HD AUDIO Mic-in /Line-out 1 x SMbus/SATA Power box header **-E/-L:** 1 x 2x4pin 12V power input (1 box header) 1 x HD Audio Mic-in/Line-Out (1 header) 1 x 8-bit GPIO header (1 header) 2 x RS232/422/485 (1 header) 2 x USB 2.0 (1 header) 1 x GPIO 8-bit (1 header) 1 x SMBus/SATA Power box header 1 x Front panel header (Power/Reset button,HDD/ Power LED)	1x ALC 888S HD Audio(Mic-in/Line-Out) 4x COM Ports (2 headers), (2 x RS232, 2 RS232/422/485, RS-485 supports Auto flow control) 1x 8-bit GPIO header 1x SMBus header 1x System Fan 1x panel backlight power header 1x Speaker 1x TPM2.0 chip on board ***(only on –H/-E)***	1 Port SuperDOM ALC 888S HD Audio TPM Header 2 COM Ports (2 headers)	1 SATA DOM power connectorYes, ALC 888S HD Audio, **X9SCAA:** 4 fast UART 16550 serialTPM Header4 COM Ports (4 headers), One COM port support RS422/485 **X9SCAA-L:** 2 fast UART 16550 serialTPM Header2 COM Ports (2 headers),
Manageability	SuperDoctor® 5, Watchdog	SuperDoctor® 5, Watchdog	IPMI2.0, KVM with dedicated LAN, NMI, SUM, SuperDoctor® 5, Watchdog	SuperDoctor® III, Watchdog
Health Monitoring	+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI	+1.35V, +12V, +3.3V, +5V, 3.3V standby, System level control, System temperature, VBAT, VCGI	+1.8V, +12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Supports system management utility, System level control	Supports system management utility, System level control
Thermal Control	N/A	1x 4-pin fan header (up to 1 fan)	2x 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors	1x 4-pin fan header (up to 1 fan), Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors
Other Features	**-H/-E:** **-L:** ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL, Force power on jumper	**-H/E/L:** With Heatsink **-WOHS:** Without Heatsin **-E/-L:** -30°C -75°C operating temperature **-H:** 0°C -60°C operating temperature ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, System level control, WOL, Force power on jumper	4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, System level control, UID, WOL, 0°C -60°C operating temperature	4-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, System level control, WOL

	Celeron® Low Power Bay Trail 4-Core, SoC, Mini-ITX	i7/i5/i3/Pentium®/Celeron® vPro AMT, 2666MHz DDR4, 6-Core	i7/i5/i3/Pentium®/Celeron® High Performance, 6-Core	i7/i5/i3/Pentium®/Celeron® High Performance, vPro AMT, 2666MHz DDR4

MODEL	X10SBA X10SBA-L	X11SCV-Q	X11SCV-L	X11SCQ
Processor	Intel® Celeron® Processor J1900 10W FCBGA1170 , 2.0-2.42GHz	8th Generation Intel® Core™ i7/i5/i3/Pentium®/Celeron® Processor. Single Socket H4 (LGA 1151) supported, CPU TDP support Up to 65W TDP		8th Generation Intel® Core™ i7/i5/i3/ Pentium®/Celeron® Processor. Single Socket H4 (LGA 1151) supported, CPU TDP support Up to 95W TDP
Chipset/System Bus	System on Chip	Intel® Q370	Intel® H310	Intel® Q370
Form Factor	Mini-ITX 6.7" x 6.7"	Mini-ITX6.7" x 6.7" (17.02cm x 17.02cm)	Mini-ITX6.7" x 6.7" (17.02cm x 17.02cm)	uATX9.6" x 9.6" (24.38cm x 24.38cm)
Memory Capacity & Slots	2 DIMM slots, 8GB with two 4GB SODIMM configuration, 1.35V only	Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2666MHz, in 2 DIMM slots		Up to 64GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots
Expansion Slots	1 PCI-E 2.0 x2 1 Mini-PCI-E slot, 1 mSATA slot	1 PCI-E 3.0 x16 ***M.2 Interface:*** 1 PCI-E 3.0 x2 and 1 CNVi/PCI-E 3.0 x1 ***M.2 Form Factor:*** 2242/2280 ***M.2 Key:*** M-Key, E-Key ***M.2 E key:*** CNVi/PCI-E 2.0 x1, support 2230 length		1 PCI-E 3.0 x16, 1 PCI-E 3.0 x1, 2 PCI-E 3.0 x4 ***M.2 Interface:*** 1 PCI-E 3.0 x4 ***M.2 Form Factor:*** 2242/2280/22110 ***M.2 Key:*** M-Key
Onboard RAID Controller	SoC controller for 2 SATA2 (3 Gbps) ports; Marvel 88SE9230 for 4X SATA3 (6 Gbps) with RAID 0,1,10 [non -L]	Intel® Q370 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10	Intel® H310 controller for 4 SATA3 (6 Gbps) ports;	Intel® Q370 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10
Onboard LAN	Dual LAN with Intel® Ethernet Controller I210-AT	Single LAN with Intel® Ethernet Controller I210-AT Single LAN with Intel® PHY I219LM		Single LAN with Intel® Ethernet Controller I210-AT Single LAN with Intel® PHY I219LM
Onboard VGA/ Display Ports	Intel® HD Graphic VGA + HDMI + DisplayPort + eDP	1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 1 Intel® HD Graphics, 3 Independent Displays	1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 2 Independent Displays	1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 1 Intel® HD Graphics, 3 Independent Displays
USB Ports	1 USB 3.0 ports (1 rear) 6 USB 2.0 ports (1 rear, 4 via headers, 1 typa A)	4 USB 2.0 ports (4 headers), 6 USB 3.1 ports (4 rears (2 Type A + 2 Type C) + 2 headers)	4 USB 2.0 ports (4 headers), 4 USB 3.0 ports (4 rear)	6 USB 2.0 ports (2 rear + 4 headers), 6 USB 3.1 ports (4 rears (2 Type A + 2 Type C) + 2 headers)
Other Onboard I/O Devices	4 COM ports support RS-232 (4 headers), TPM header, Audio Header	ALC 888S HD Audio, TPM 2.0 Header & Chip both 6 COM Ports (2 rear, 4 headers); 4 COM port support RS-232 thru pin header; 2COM support RS-232/422/485 in rear		7.1 HD Audio, TPM Header & Chip both 6 COM Ports (6 headers), support RS-232
Manageability	Watchdog, SuperDoctor® 5	AMT, NMI, vPro, Watchdog	NMI, SuperDoctor® 5, Watchdog	AMT, NMI, SuperDoctor® 5, vPro, Watchdog
Health Monitoring	Monitors CPU voltages, +3.3V, +5V, +12V & +5V standby and total of two 4-pin fan headers with tachometer monitoring, supports system management utility, chassis intrusion header	+1.8V, +3.3V, +5V, +5V standby, 3 -fan status, Chassis intrusion header, HT, VBAT		+12V, +3.3V, +5V, 1.2V (VDIMM), 4 fans with tachometer monitoring, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, VBAT
Thermal Control	Overheat LED indication, thermal control tachometer fan connectors	3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, Fan speed control, Low noise fan speed control, Overheat LED indication, PWM fan speed control, Thermal control tachometer fan connectors	3x 4-pin fan headers (up to 3 fans), 3 fans with tachometer monitoring, System level control, Thermal control tachometer fan connectors	4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring
Other Features	ACPI power management, WOL, control of power-on for recovery from AC power loss, Adaptive Thermal Monitor & CPU thermal trip support for processor protection, 0°C – 60°C operating temperature	12V DC or ATX Power Source, 8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion detection, RoHS, Halogen Free, WOL		ACPI power management, ATX Power connector, Chassis intrusion header, M.2 NGFF connector, RoHS

	i7/i5/i3/Pentium®/Celeron® High Performance, 2666MHz DDR4	i7/i5/i3/Pentium®/Celeron® vPro AMT, Workstation, 2666MHz DDR4	i7/i5/i3 High Performance, 15W, 3.5" SBC	i7/i5/i3/Pentium®/Celeron®
MODEL	**X11SCQ-L**	**X11SCZ-Q**	**X11SSN-H(-VDC/-WOHS) X11SSN-E(-VDC/-WOHS) X11SSN-L(-VDC/-WOHS)**	**X11SSV-LVDS**
Processor	8th Generation Intel® Core™ i7/i5/i3/ Pentium®/Celeron® Processor. Single Socket H4 (LGA 1151) supported, CPU TDP support Up to 95W TDP	8th Generation Intel® Core™ i7/i5/i3/ Pentium®/Celeron® Processor. Single Socket H4 (LGA 1151) supported, CPU TDP support Up to 95W TDP	Single Socket FCBGA1356 supported, CPU TDP support 15W **-H:** 7th Generation Intel® Core™ i7-7600U Processor **-E:** 7th Generation Intel® Core™ i5-7300U Processor. **-L:** 7th Generation Intel® Core™ i3-7100U Processor.	Intel® 7th/6th Generation Core™ i3 series Intel® 7th/6th Generation Core™ i5 series Intel® 7th/6th Generation Core™ i7 series Intel® Celeron® Intel® Pentium® Socket H4 (LGA 1151) supported; CPU TDP support Up to 91W
Chipset/System Bus	Intel® H310	Intel® Q370	System on Chip	Intel® Q170 Express
Form Factor	uATX9.6" x 9.6" (24.38cm x 24.38cm)	uATX9.6" x 9.6" (24.38cm x 24.38cm)	3.5" SBC, 5.7" x 4.0" (14.6cm x 10.16cm)	Mini-ITX 6.7" x 6.7"
Memory Capacity & Slots	Up to 32GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 2 DIMM slots	Up to 64GB Unbuffered non-ECC UDIMM, DDR4-2666MHz, in 4 DIMM slots	Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2133MHz, in 2 DIMM slots	Up to 32GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots
Expansion Slots	1 PCI-E 3.0 x16 1 PCI-E 2.0 x4 1 PCI-E 2.0 x1	1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4 (in x8 slot) ***M.2 Interface:*** 1 SATA/PCI-E 3.0 x4 ***M.2 Form Factor:*** 2280/22110 ***M.2 Key:*** M-Key	1 Full size Mini-PCI-E with mSATA (USB 2.0 x 1,PCI-E Gen2 x 1,SATA Gen3 x 1) 1 M.2 2242/3042/2280 B-Key (USB 2.0 x 1,PCI-E Gen2 x 1,SATA Gen3 x 1) ***M.2 Interface:*** SATA and PCI-E 3.0 x1 and USB 2.0 ***M.2 Form Factor:*** 2242, 2280, 3042 ***M.2 Key:*** B-Key	1 PCI-E 3.0 x16 Mini-PCI-E with mSATA support, M.2 PCI-E 3.0 x4 with SATA support, M Key ***M.2 Interface:*** PCI-E 3.0 x4 ***M.2 Form Factor:*** 2242, 2280
Onboard RAID Controller	Intel® H310 controller for 4 SATA3 (6 Gbps) ports;	Intel® Q370 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10		Intel® Q170 Express controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10; Intel® RST
Onboard LAN	Single LAN with Intel® Ethernet Controller I210-AT Single LAN with Intel® PHY I219LM	Single LAN with Intel® Ethernet Controller I210-AT Single LAN with Intel® PHY I219LM	Single LAN with Intel® PHY I219LM Single LAN with Intel® Ethernet Controller I210IT	Single LAN with Intel® PHY I219LM Single LAN with Intel® Ethernet Controller I210-AT
Onboard VGA/ Display Ports	1 DVI - D port, 1 HDMI port, 1 DP (DisplayPort) port, 1 eDP (Embedded DisplayPort) port, 1 Intel® HD Graphics, 2 Independent Displays	1 DVI - I port, 2 DP (DisplayPort) ports, 1 Intel® HD Graphics, 3 Independent Displays	1 DP (DisplayPort) port(s), 1 48-bit LVDS port(s), 1 HDMI port(s), 1 Intel® HD Graphics, Dual channel 48-bit LVDS , HDMI 2.0a, DP++	1 HDMI, 1 DP (DisplayPort), 1 LVDS 1 Intel® HD Graphics 3 Independent Displays
USB Ports	6 USB 2.0 ports (2 rear + 4 headers), 4 USB 3.1 ports (4 rears (2 Type A + 2 Type C))	7 USB 2.0 ports (6 headers + 1 Type A), 2 USB 3.0 ports (2 headers), 6 USB 3.1 ports (4 rears (3 Type A + 1 Type C) + 2 headers)	4 USB 2.0 ports (+ 4 via header(s)), 2 USB 3.0 ports (rear I/O), 1 USB 3.1 ports (+ 1 Type C) 1 USB 3.0 OTG Header	5 USB 2.0 ports (+ 4 via headers + 1 Type A) 6 USB 3.0 ports (4 rear + 2 via header)
Other Onboard I/O Devices	7.1 HD Audio, TPM Header, 6 COM Ports (6 headers), support RS-232	1 Port SuperDOM, ALC 888S HD Audio, TPM Header & Chip both 4 COM Ports (4 headers)	ALC 888S HD Audio, 4 COM Ports (4 headers), (2 x RS232, 2 RS232/422/485, RS-485 supports Auto flow control), 1 HD Audio header (Mic-in/Line-Out) 1 8-bit GPIO header 1 SMBus header 1 Speaker **-H/E:** TPM 2.0 Chip	2 ports SuperDOM ALC 888S HD Audio TPM 2.0 Header 1 COM Ports (1 header) SGPIO Header, SMbus header, GPIO
Manageability	NMI, SuperDoctor® 5, Watchdog	AMT, NMI, SuperDoctor® 5, vPro, Watchdog	SuperDoctor® 5, Watchdog **-H/E:** AMT, vPro	AMT, NMI, SuperDoctor® 5, vPro, Watchdog
Health Monitoring	+12V, +3.3V, +5V, 1.2V (VDIMM), 4 fans with tachometer monitoring, Chassis intrusion header, Memory Voltages, Monitors CPU voltages, System temperature, VBAT	+1.35V, +1.5V, +1.8V, +12V, +3.3V, +5V, +5V standby, 1.05 (PCH), 5 -fan status	+12V, +3.3V, +5V, 1.2V (VDIMM), 3.3V standby, Monitors for CPU Cores, System level control, System temperature, VBAT	+1.8V, +12V, +3.3V, +5V, +5V standby, 4 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control
Thermal Control	4x 4-pin fan headers (up to 4 fans), 4 fans with tachometer monitoring, Fan speed control	5x 4-pin fan headers, 5 fans with tachometer status monitoring, Dual Cooling Zone	1x 4-pin fan header (up to 1 fan), Fan speed control, Low noise fan speed control, PWM fan speed control, System level control, Thermal control tachometer fan connectors	4x 4-pin fan headers (up to 4 fans), Fan speed control, Pulse Width Modulated (PWM) fan connectors, PWM fan speed control, System level control, Thermal control tachometer fan connectors
Other Features	ACPI power management, ATX Power connector, Chassis intrusion header, RoHS, WOL	8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Dual Cooling Zones, M.2 NGFF connector, RoHS	**-H/E/L:** 4-pin 12V R/A Type DC Power Connector, **-VDC:** 4-pin 12V DC Power Input Vertical Type Connector, **-WOHS:**without heatsink **-H/E:** 0°C -70°C operating temperature **-L:**0°C -60°C operating temperature ACPI power management, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, M.2 NGFF connector, RoHS, WOL, Force Power On by Jumper	8-pin 12v DC power connector, ACPI power management, ATX Power connector, Chassis intrusion header, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, M.2 NGFF connector, RoHS, System level control, WOL

	i7/i5/i3/Pentium®/Celeron® vPro AMT IPMI Embedded 1U Optimized Core i7 uATX	i7/i5/i3/Pentium®/Celeron® vPro AMT IPMI, Dual 10GbE Embedded 1U Optimized uATX	i7/i5/i3/Pentium®/Celeron® vPro AMT, mini-ITX	i7/i5/i3/Pentium®/Celeron® vPro AMT, Embedded

MODEL	X11SSZ-QF	X11SSZ-F X11SSZ-TLN4F	X11SSV-Q	X11SSQ X11SSQ-L
Processor	Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Celeron®, Intel® Pentium®, Socket H4 (LGA 1151) supported; CPU TDP support 95W	Intel® Xeon® processor E3-1200 v6/v5 product family. Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Celeron®, Intel® Pentium®, Socket H4 (LGA 1151) supported; CPU TDP support 95W	Intel® 7th/6th Generation Core™ i7/i5/i3 series, Intel® Celeron®, Intel® Pentium®, Socket H4 (LGA 1151) supported; CPU TDP support 95W	Intel® 7th/6th Gen Core i7/i5/i3 series, Intel® Celeron®, Intel® Pentium® processors; CPU TDP support up to 95W TDP Single Socket H4 (LGA 1151)
Chipset/System Bus	Intel® Q170	Intel® C236	Intel® Q170	**X11SSQ:** Intel® Q170 (X11SSQ), **X11SSQ-L:** Intel® H110
Form Factor	uATX 9.6" x 9.6"		Mini-ITX 6.7" x 6.7"	microATX 9.6" x 9.6"
Memory Capacity & Slots	64GB Unbuffered Non-ECC UDIMM, DDR4-2400MHz, in 4 DIMM slots		32GB Unbuffered non-ECC SO-DIMM, DDR4-2400MHz, in 2 DIMM slots	4x 288-pin DDR4 DIMM slots Up to 64GB DDR4 Non-ECC UDIMM X11SSQ-L: up to 32GB in 2 DIMM slots
Expansion Slots	1 PCI-E 3.0 x16 (in x16 slot) 2 PCI-E 3.0 x4 (in x8 slot)	1 PCI-E 3.0 x16 (in x16 slot) 2 PCI-E 3.0 x4 (in x8 slot)	1 PCI-E 3.0 x16 Mini-PCI-E with mSATA support, M.2 PCI-E 3.0 x4 with SATA support, 2242/2280	**X11SSQ:** 1 PCI-E 3.0 x16, 2 PCI-E 3.0 x4, 1 PCI-E 3.0 x1, M.2 PCI-E x2 2242/60/80 **X11SSQ-L:** 1 PCI-E 3.0 x16, 1 PCI-E 2.0 x1, 1 PCI-E 2.0 x1
Onboard RAID Controller	Intel® Q170 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10	Intel® C236 controller for 4 SATA3 (6 Gbps) ports; RAID 0,1,5,10	Intel® Q170 controller for 5 SATA3 (6 Gbps) ports; RAID 0,1,5,10	**X11SSQ:** Q170 controller for 6 SATA3 ports: RAID 0,1,5,10 **X11SSQ-L:** H110 controller for 4 SATA3 ports
Onboard LAN	Dual GbE LAN with Intel® i219LM and i210AT	Dual GbE LAN with Intel® i219LM and i210AT Dual 10GbE with Intel® X550 (**-TLN4F** Only)	Dual GbE LAN with Intel® i219LM and i210AT	**X11SSQ:** Dual GbE LAN with Intel® i219LM and i210AT **X11SSQ-L:** Single GbE LAN with Intel® i219LM
Onboard VGA/Display Ports	2 DP (DisplayPort) 1 DVI-I Intel® HD Graphics 3 Independent Displays 1 Aspeed AST2400 BMC VGA port		1 HDMI 1 DP (DisplayPort) 1 DVI - I Intel® HD Graphics 3 Independent Displays	1 HDMI, 1 DVI-D 1 DP (Display Port) 1 eDP (X11SSQ only) 3 Independent Displays **-L:** 2 Independent Displays
USB Ports	4 USB 3.0 ports (2 rear + 2 viaheader) 9 USB 2.0 ports (2 rear + 6 viaheaders + 1 Type A)	4 USB 3.0 ports (2 rear + 2 viaheader) 9 USB 2.0 ports (4 rear + 4 viaheaders + 1 Type A)	6 USB 3.0 ports (4 rear + 2 via header) 5 USB 2.0 ports (+ 4 via headers +1 Type A)	4x USB 3.0 ports (2 rear + 2 via header) 6x USB 2.0 ports (2 rear + 4 via headers) X11SSQ: 2x additional rear USB 2.0 ports
Other Onboard I/O Devices	1 Port SuperDOM 1 SATA DOM power connector ALC 888S HD Audio TPM Header 2 COM Ports (2 headers)		2 SuperDOM Ports ALC 888S HD Audio TPM Header 2 COM Ports (2 rears)	1x SuperDOM (Disk on Module) ports with built-in power SGPIO Header (X11SSQ only) SMbus header
Manageability	IPMI 2.0 + KVM with dedicated LAN, AMT/vPRO, NMI, SuperDoctor 5, Watchdog		AMT/vPRO, NMI, SuperDoctor 5, Watchdog	SuperDoctor 5, NMI, Watchdog AMT vPRO (X11SSQ only)
Health Monitoring	+1.8V, +12V, +3.3V, +5V, +5V standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility, System level control			Monitors for CPU Cores, +1.8V, +3.3V, +5V, +12V, +5V Standby, VBAT, HT, Memory, Chipset Voltages.
Thermal Control	6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors	6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors	4 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors	Monitoring for CPU and chassis environment CPU thermal trip support I2C temperature sensing logic Thermal Monitor 2 (TM2) support PECI
Other Features	8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Intel® Smart Response Technology, System level control, UID, WOL. RSTe		8-pin 12v DC power connector, ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processorprotection, Intel® Smart Response Technology, M.2 NGFF connector, System level control, WOL. RST	Chassis intrusion detection Chassis intrusion header RoHS, RST

	Skylake-D 8/12/16-Core, Dual 10GbE, Dual 10G SFP+, Quad GbE LANs	**Skylake-D** 4/8/12/16-Core, NVMe, Dual 10GbE	**Broadwell-DE** SoC, 4/6/8/16-Core, 128GB Memory, Dual 10GbE, Dual GbE	**Broadwell-DE** SoC, 8-Core, 128GB Memory Dual GbE

Broadwell/Haswell
12" x 10", Cost-Effective, SAS3 HW RAID, Dual 10GbE, Dual GbE

Broadwell/Haswell
12" x 10, Cost-Effective Dual GbE, SATA

Broadwell/Haswell
12" x 13", WIO, Dual 10GbE SAS3 AOM

Broadwell/Haswell
3 AOC in 1U, SAS3 AOM Support 4 Ports NVMe

MODEL	X10DRL-C(T)	X10DRL-I	X10DRW-i X10DRW-iT	X10DDW-i X10DDW-iN
Processor	Intel® Xeon® Processor E5-2600 v4 (Broadwell)/v3 (Haswell) product family supported; QPI up to 9.6GT/s; CPU TDP support up to 145W			
Chipset/System Bus	Intel® C612 Chipset			
Form Factor	ATX 12" x 10"		Proprietary 12.3" x 13"	Proprietary 12.8" x 13.4"
Memory Capacity & Slots	**-C:** 512GB ECC RDIMM, DDR4-2133MHz1TB 3DS ECC/non-ECC LRDIMM, DDR4-2133MHz, in 8 DIMM slots **-CT:** 512GB Registered ECC RDIMM, DDR4-2133MHz; Up to 1TB 3DS ECC LRDIMM, DDR4-2133MHz, in 8 DIMM slots	512GB Registered ECC RDIMM, DDR4-2133MHz; Up to 1TB 3DS ECC LRDIMM, in 8 DIMM slots	1TB Registered ECC RDIMM, DDR4-2400MHz; Up to 2TB 3DS ECC LRDIMM, DDR4-2400MHz, in 4 DIMM slots	**-i:** Up to 512GB ECC RDIMM Or 32GB Unbuffered ECC/non-ECC UDIMM, in 4 DIMM slots **-iN:** Up to 512GB ECC RDIMM, DDR4-2400MHz; Up to 2TB 3DS ECC LRDIMM, DDR4-2400MHz, in 16 DIMM slots
Expansion Slots	2 PCI-E 3.0 x8 1 PCI-E 3.0 x16	3 PCI-E 3.0 x8 1 PCI-E 3.0 x16 1 PCI-E 3.0 x4 (in x8 slot) 1 PCI-E 2.0 x4 (in x8 slot)	1 PCI-E 3.0 x32 Left Riser Slot 1 PCI-E 3.0 x16 Right Riser Slot 1 PCI-E 3.0 x16 for SAS3 AOM	1 PCI-E 3.0 x24 Left Riser Slot 1 PCI-E 3.0 x8 Right Riser Slot 1 PCI-E 3.0 x8 for SAS3 AOM
Onboard RAID Controller	**-CT:** Intel® C612 controller for 6 SATA3 (6 Gbps) ports; RAID 0,1,5,10; SAS3 LSI® 3108 HW with 2G Cache controller for 8 SAS3 (12Gbs) ports; RAID 0,1,5,6,10,50,60	Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10		
Onboard LAN	Dual LAN with Intel® i210 Gigabit Ethernet Controller Dual LAN with Intel® X540 10GBase-T Ethernet Controller	Dual LAN with Intel® i210 Gigabit Ethernet Controller	**-i:** Dual LAN with Intel® i350 Gigabit Ethernet Controllers **-iT:** Dual LAN with Intel® X540 10GBase-T Ethernet Controller	Dual LAN with Intel® i350 Gigabit Ethernet Controllers
Onboard VGA/ Display Ports	AST2400 VGA			
USB Ports	4 USB 3.0 ports (2 rear + 2 via header) 3 USB 2.0 ports (2 via headers + 1 Type A)	4 USB 3.0 ports (2 rear + 2 via header) 5 USB 2.0 ports (2 rear + 2 via headers + 1 Type A)	6 USB 3.0 ports (4 rear + 2 via header)	3 USB 3.0 ports (2 rear +1 Type A) 4 USB 2.0 ports (2 rear + 2 via headers)
Other Onboard I/O Devices	2 ports SuperDOM 1 SATA DOM power connector TPM onboard header 1 COM port (1 header) SuperCAP connector (-C SKU only)	2 ports SuperDOM 1 SATA DOM power connector TPM Module header 2 COM ports (1 rear, 1 header)	2 ports SuperDOM TPM module header 1 COM port (1 header)	2 ports SuperDOM TPM module header 1 COM port (1 header) **-iN:** 4 ports internal NVMe
Manageability	IPMI 2.0 + KVM with dedicated LAN, Intel® Node Manager, NMI, SPM, SUM, SuperDoctor® 5, Watchdog			
Health Monitoring	+12V, +3.3V, +5V, +5V standby, 8 -fan status, Chassis intrusion header, Monitors CPU voltages, Supports system management utility	+12V, +3.3V, +5V, +5V Standby, 3.3v standby, Chassis intrusion header, Monitors CPU voltages, Supports system management utility		
Thermal Control	8 4-pin, Overheat LED indication, PWM fan speed control	8 4-pin, Overheat LED indication, PWM fan speed control, System level control	6 4-pin, Fan speed control, Overheat LED indication, PWM fan speed control, System level control, Thermal control tachometer fan connectors	8 4-pin, Overheat LED indication, PWM fan speed control, System level control
Other Features	ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL, UID			ACPI power management, ATX Power connector, Control of power-on for recovery from AC power loss, CPU thermal trip support for processor protection, Node Manager Support, SDDC, WOL

Haswell
WIO for 1U/3-AOC Solution

Haswell
HPC & Virtualization

Haswell
I/O Intensive Solution with 7x PCI-E Solts

Haswell
High-Performance Storage with SAS3 & Dual 10GbE

MODEL	X10SRW-F	X10SRi-F	X10SRL-F	X10SRH-CLN4F
Processor	Intel® Xeon® Processor E5-2600/1600 v4/v3 (Haswell) product families supported; CPU TDP support Up to 145W			
Chipset/System Bus	Intel® C612 Chipset			
Form Factor	Proprietary 8" x 13"	ATX 12" x 9.6"	ATX 12" x 9.6"	ATX 12" x 9.6"
Memory Capacity & Slots	DDR4-2133MHz in 8 DIMM slots Up to 512GB ECC LRDIMM Up to 256GB ECC RDIMM	Up to 512GB ECC LRDIMM, 256GB ECC RDIMM,DDR4-2133MHz in 8 DIMM slots		
Expansion Slots	2x PCI-E 3.0 x16(in WIO solt) 1x PCI-E 3.0 x 8 (in x 16 slot)	1 PCI-E 3.0 x16 1 PCI-E 3.0 x4 (in x8) 2 PCI-E 3.0 x8 1 PCI-E 2.0 x4 (in x8 slot) 1 PCI-E 2.0 x2 (in x8 slot)	2 PCI-E 3.0 x8 (in x16 slot) 2 PCI-E 3.0 x8 2 PCI-E 3.0 x4 (in x8) 1 PCI-E 2.0 x4 (in x8 slot)	1 PCI-E 3.0 x8 (in x16 slot) 1 PCI-E 3.0 x4 (in x8 slot) 2 PCI-E 3.0 x8 1 PCI-E 2.0 x2 (in x4 slot) 1 PCI-E 2.0 x4 (in x8 slot)
Onboard RAID Controller	Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,5,10			Intel® C612 controller for 10 SATA3 (6 Gbps) ports; RAID 0,1,10 LSI