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Network Computing Platforms



GSA Contract Holder
GS-35F-0470Y

Focus • Agility • Competitiveness



Rackmount and Desktop Network Appliances (FWS Series)

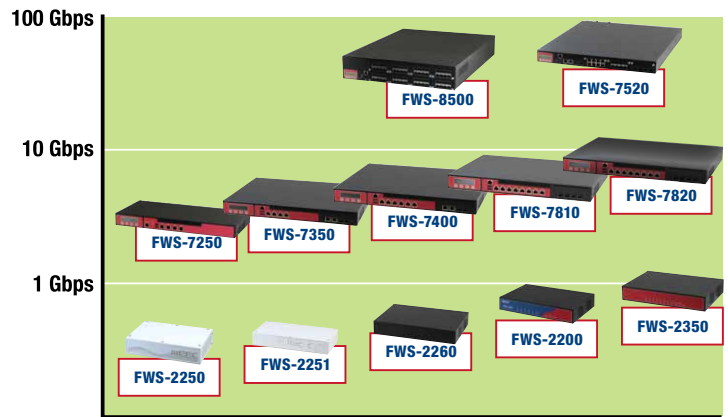
Introduction to the FWS Series

The FWS Series offers enterprise-grade 2U rackmount, 1U rackmount and desktop network appliances with a broad array of processors from the powerful Intel® Xeon®, Core™ i7/ i5/ i3 to the cost efficient Atom™ processors. Designed for scalability and flexible configurations, the FWS Series are reliable systems for demanding network applications. The FWS Series come with various combinations of Ethernet modules, including GbE and SFP Fiber LAN, PCI-E Bus expansion slots and LCM with keypad control.



Benefits for FWS Series Customers

Our mission to offer customers complete solutions is supported by our solid engineering expertise, which has helped increase customer profitability and lowering total cost of ownership via detailed optimization of technology services. AAEON is well poised to support customers with a comprehensive solution and ensure that our customers' products are competitive in the Network Security market. AAEON provides faster time-to-market services with close co-development processes with customers, and provides higher flexibility and quality with reliable validation process in place.



Network Interface Modules (NIM)

The FWS Series are designed with front panel swappable design configurations, giving customers swappable modules offering 10/100/1000Base-TX Ethernet, SFP+ and QSFP fiber LAN connectivity options.



Swappable Design for Varied Configurations

Network Applications

- IDS (Intrusion Detection System)
- IPS (Intrusion Prevention System)
- VPN (Virtual Private Networks)
- NAC (Network Access Control)
- Load Balancing
- Web Content Filtering
- UTM (Unified Threat Management)
- VoIP Gateway
- Wireless Network Security
- Next Generation Firewall (NGFW)

Core Competence of AAEON FWS Series



Leading Networking Technology

- 10/100/1000/10000/40000 Mbps Ethernet
- Copper and fiber Ethernet at 10GbE, 40GbE
- Support for up to 64 network ports
- Advanced bypass solutions
- Higher throughput

Your Reliable Networking Solutions

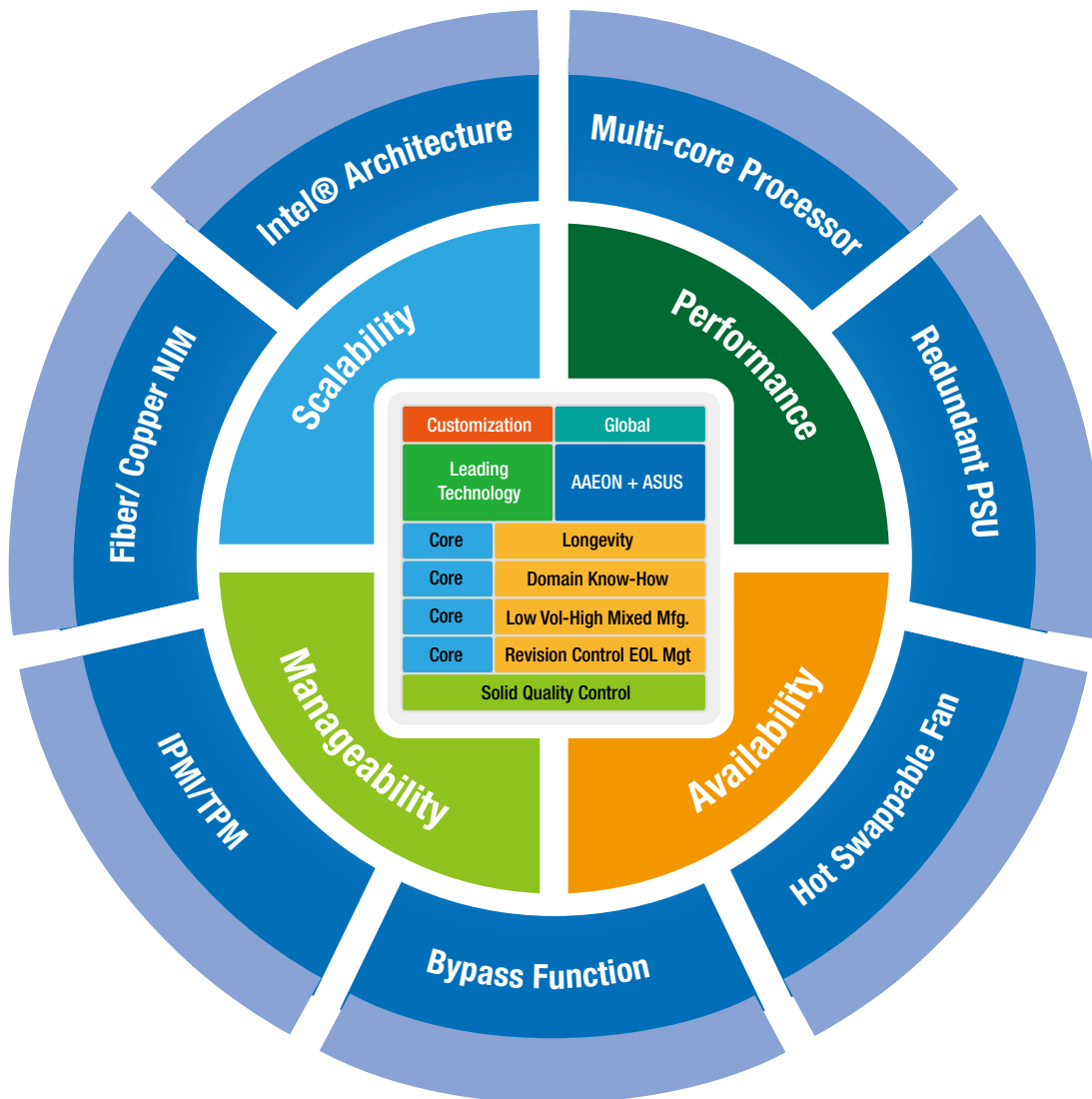
All AAEON network appliances incorporate LAN Bypass functions, redundant power supplies and hot swappable fans, allowing your network to remain up and running even in times of unexpected outages and breakdowns.

Module NIC and High Port Density

Featuring 64 network ports, the FWS-8500 is a 2U rackmount device with AAEON's modular technology to cater to all of your customization needs.

Cutting Edge Processors

All of AAEON's network solutions leverage the latest Intel® Xeon®, Core™ and Atom™ processors for maximum data processing capabilities, providing the lowest power consumption.





Features

Software-Programmable Button

Software-programmable keys can be found in AAEON's FWS Series for quicker access to customized features, such as system reset, restore, etc. ...

LCM & Keypad

AAEON's rackmount FWS Series products are fitted with an LCD Module and keypad, which can be used for accessing the LEDs, bypass functions, watchdog or Linux API via customized software

Hot-Swappable System Fans

Fans, due to their mechanical nature and continuous operation, normally suffer low mean time between failures (MTBF) and are considered the most vulnerable component in any computers or dedicated appliances. In order to prevent costly downtime and tarnished reputations caused by overheating, AAEON's FWS Series network appliances feature a range of fans with N+1 redundancy and hot swappable designs that allow fans to be immediately replaced once a breakdown is discovered.

Redundant Power Supplies

Mission critical appliances, such as network appliances, are heavily dependent upon and hence are commonly designed with more than one source of power. AAEON's FWS Series network appliances are no exception. With dual power supply, devices can remain operational, even in times of power outages.

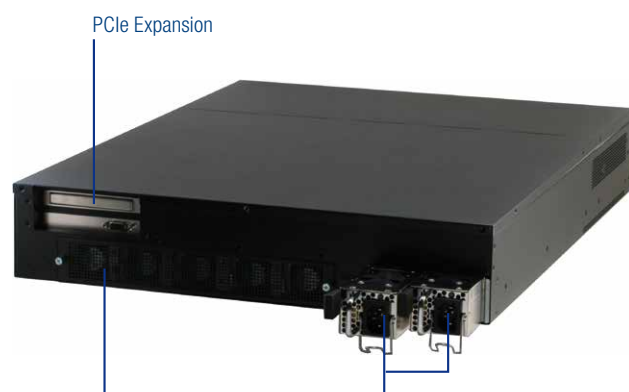
IPMI Remote Management

- Provides the foundation for intelligent platform management: Autonomous access, monitoring, logging and control features that function independently from the system processors.
- Provides scalable support for entry to high-end systems
- Supports multi-chassis and modular configuration



LCM & Keypad

Software-Programmable Button



PCIe Expansion

Hot-Swappable System Fans

Redundant Power Supplies

Design Manufacturing Service

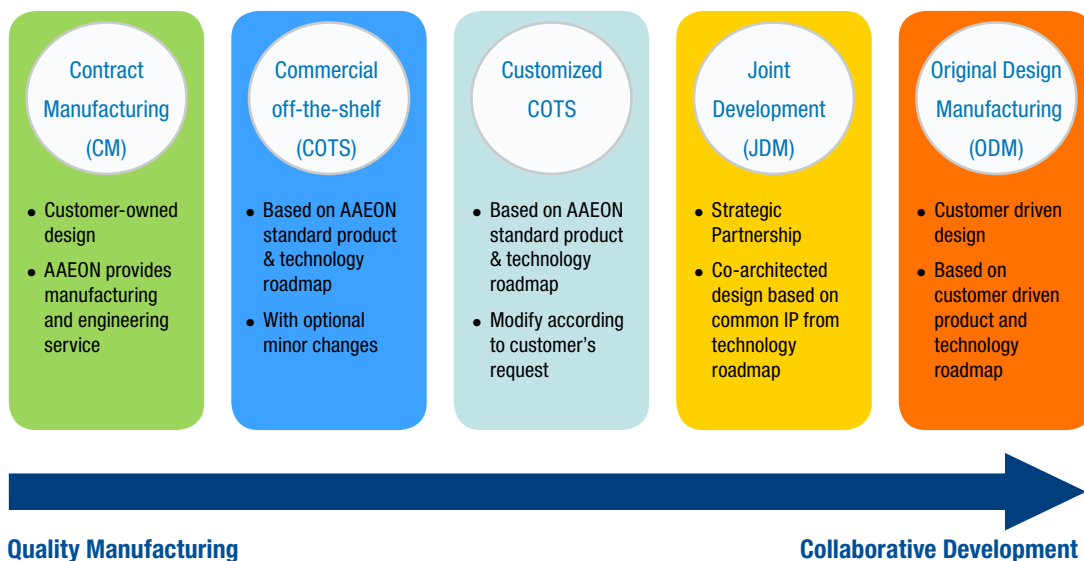


Design Manufacturing Service (DMS) offers exceptional end-to-end services from product conceptualization, product development to manufacturing and service programs. All services are linked together through a comprehensive process and closely monitored by dedicated professionals to guarantee the highest level in product quality, reliability and durability.



Collaboration Models

Customers can consign to AAEON the manufacturing of their existing products, customize existing AAEON COTS products, or joint develop new products with the expertise of a dedicated project team that oversees the project from product conceptualization to on-time delivery of the goods. AAEON DMS handles Large-volume as well as Low-Volume-High-Mix projects, satisfying the need of our customers for every kind of computing platform requirement.





Selection Guide



Model	FWS-2350	FWS-2270	FWS-2260	FWS-2253
Platform				
Form Factor	Desktop 6-Port Network Appliance	Desktop 6-Port Network Appliance	Desktop 6-Port Network Appliance	Desktop 4-Port Network Appliance
Processor	Intel® Atom™ C2358 1.7 GHz (Dual Core) Intel® Atom™ C2558 2.4 GHz (Quad Core)	Intel® Apollo Lake Processor SoC	Intel® Celeron® N3060/N3160 Processor SoC	Intel® Celeron® N2807 2.0 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)
Chipset	—	—	—	—
System Memory	240-pin DDR3 1333MHz ECC or non-ECC SODIMM x 2, up to 16GB	204-pin DDR3L 1867MHz SODIMM x 2, up to 16GB	204-pin DDR3L 1600MHz SODIMM x 2, up to 8GB	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB
Network				
Ethernet	Intel® i211, Gigabit Ethernet x 2 (Optional additional Intel® i211, Gigabit Ethernet x 2), Marvell 88e1543 x 1	Intel® i211, Gigabit Ethernet x 6 (Optional Gigabit Ethernet x 8)	Intel® i211, Gigabit Ethernet x 6 (Optional Intel® i211, Gigabit Ethernet x 4)	Intel® i211, Gigabit Ethernet x 4
Bypass	Supports up to 2 pairs bypass function	—	Supports up to 2 pairs bypass function	Supports 1 pair bypass function
Display				
Graphic Controller	—	—	—	Reserve internal VGA pin header x 1
Connector	—	HDMI x 1	HDMI x 1	—
Storage				
HDDs	Internal 2.5" SATA HDD Bay x 1	Internal 2.5" SATA HDD Bay x 1 for SATA 6.0Gb/s x 1 (Optional SATA 6.0Gb/s x 2)	Internal 2.5" SATA HDD Bay x 1, SATA II Port x 1	—
CF/CFast/mSATA	CF socket x 1 (Optional CFast™ socket x 1)	CF socket x 1	CF socket x 1 (Optional CFast™ socket or mSATA socket x 1)	CF socket x 1
Expansion/Internal Interface				
PCIe slot	—	Optional Golden Finger x 1 (PCIe[x1] x 2)	—	—
Mini-PCIe slot	Mini-Card slot with SIM socket x 1 (Full size) (Optional Mini-Card slot up to 2)	Mini-Card slot with SIM socket x 1 (full size) (Optional Mini-Card slot with SIM socket x 2)	Mini-Card slot with SIM socket x 1 (USB Signal only, full size) (Optional Mini-Card slot with SIM socket x 2)	Mini-Card Slot x 1 (Half size)
Keyboard & Mouse	Reserve pin-header	Reserve pin-header	Reserve pin-header	Reserve pin-header
Universal Serial Bus	USB2.0 x 2	USB3.0 x 2, USB2.0 internal 2x 5 pin-header x 1 (Optional)	USB3.0 x 2, USB3.0 internal pin-header x 1 (optional)	USB2.0 x 2, USB3.0 x 1
Miscellaneous				
RTC	Internal RTC	Internal RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Optional TPM v1.2/v2.0	Optional TPM v1.2/v2.0	Optional TPM v1.2 /v2.0	—
GPIO	Reserve internal GPIO Pin header x 1	Reserve internal GPIO Pin header x 1	Reserve internal GPIO Pin header x 1	—
FAN	System Fan x 1	Fanless	Fanless	Fanless
MTBF (Hours)	90,000	90,000	90,000	—
Color	Black	Black	Black	Black
Environmental Parameters and Dimension				
Power Requirement	12V DC power in connector/ 60W Power adapter x 1, 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 60W Power adapter x 1, 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 60W Power adapter x 1, 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 40W Power adapter x 1, 4-pin DC power out connector for HDD x 1
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	-4°F ~ 158°F (-20°C ~ 70°C), N2807 -4°F ~ 131°F (-20°C ~ 55°C), J1900
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
Storage Humidity	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10 G peak acceleration (11 m sec. duration), operation, 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation, 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation, 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation, 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	10.24" x 7.01" x 1.73" (260mm x 178mm x 44mm)	8.27" x 4.09" x 1.73" (210mm x 104mm x 44mm)	10.23" x 7.01" x 1.73" (260mm x 178mm x 44mm)	6.89" x 4.09" x 1.5" (175mm x 104mm x 38mm)
I/O Interfaces				
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1, Bypass LED x 2 (Optional) LAN LED x 12 (Supports up to LAN LED x 16)	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN LED x 12	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 2 LAN LED x 12	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN LED x 8
Rear Panel	12V DC Power Input x 1 Power Button x 1 USB2.0 x 2 RJ-45 LAN x 6 (Supports up to RJ-45 LAN x 8) RJ-45 Console x 1 Software Programmable Button x 1	12V DC Power Input x 1 Power Button x 1 USB3.0 x 2 RJ-45 LAN x 6 RJ-45 Console x 1 Software Programmable Button x 1 HDMI x 1 (Optional)	12V DC Power Input x 1 Power Button x 1 USB3.0 x 2 RJ-45 LAN x 6, RJ-45 Console x 1 Software Programmable Button x 1 HDMI x 1	12V DC Power Input x 1 Power Button x 1 USB3.0 x 1 USB2.0 x 2 RJ-45 LAN x 4 RJ-45 Console x 1 Software Programmable Button x 1

Selection Guide



Model	FWS-2252	FWS-2251	FWS-2250	FWS-2200
Platform				
Form Factor	Desktop 4-Port Network Appliance	Desktop 4-Port Network Appliance	Desktop 4-Port Network Appliance	Desktop 6-Port Network Appliance
Processor	Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Atom™ E3815 1.46 GHz (Single Core) Intel® Atom™ E3827 1.75 GHz (Dual Core) Intel® Celeron® J1900 2.0 GHz (Quad Core)	Intel® Atom™ D525 1.8 GHz (Dual Core)
Chipset	—	—	—	Intel® ICH8M
System Memory	204-pin Dual channel DDR3L 1333MHz SODIMM x 2, up to 8GB	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB	204-pin Dual channel DDR3L 1333/1600MHz SODIMM x 2, up to 8GB (E3815 Single Channel)	204-pin Single channel DDR3 800MHz SODIMM x 2, up to 4 GB
Network				
Ethernet	Intel® i211, Gigabit Ethernet x 4	Intel® i211, Gigabit Ethernet x 4	Intel® i211, Gigabit Ethernet x 4	Intel® 82574L, Gigabit Ethernet x 6
Bypass	Supports 1 pair bypass function	—	Supports 1 pair bypass function	Supports up to 2 pairs bypass function
Display				
Graphic Controller	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
Connector	—	—	—	—
Storage				
HDDs	2.5" HDD Bay x 1	Optional SATA II connector x 1 (SATA DOM Horizontal and no housing type only)	Optional SATA II connector x 1	Internal 2.5" SATA HDD Bay x 1
CF/CFast/mSATA	CF socket x 1	CF socket x 1	CF socket x 1	CF socket x 1
Expansion/Internal Interface				
PCIe slot	—	—	—	—
Mini-PCIe slot	Mini-Card Slot x 1 (Half size)	Mini-Card Slot x 3 (Half Size x 1, Full Size with SIM Socket x 1, USB 2.0 Signal only Full size with dual SIM socket x 1)	Mini-Card slot x 1 (Half size)	Mini-Card slot x 1
Keyboard & Mouse	Reserve pin-header	Reserve pin-header	Reserve pin-header	Reserve pin-header
Universal Serial Bus	USB2.0 x 2, USB3.0 x 1	USB3.0 x 1	USB2.0 x 2, USB3.0 x 1	USB2.0 x 2
Miscellaneous				
RTC	Internal RTC	Internal RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	—	—	—	—
GPIO	—	—	—	—
FAN	Fanless	Fanless	Fan/Fanless refers to order information	System Fan x 1
MTBF (Hours)	—	90,000	90,000	90,000
Color	Black	White	White	Black
Environmental Parameters and Dimension				
Power Requirement	12V DC power in connector/ 40W Power adapter x 1, 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 40W Power adapter x 1 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 40W Power adapter x 1 4-pin DC power out connector for HDD x 1	12V DC power in connector/ 60W Power adapter x 1 4-pin DC power out connector for HDD x 1
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing	10%~80% relative humidity, non-condensing
Storage Humidity	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10%~80% @40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D), 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	7.87" x 4.09" x 1.73" (200mm x 104mm x 44mm)	8.27" x 4.09" x 1.38" (210mm x 104mm x 35mm)	6.3" x 4.09" x 1.38" (160mm x 104mm x 35mm)	10.24" x 7.01" x 1.73" (260mm x 178mm x 44mm)
I/O Interfaces				
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN LED x 8	Power LED x 1 HDD Active LED x 1 LAN LED x 8 RSSI LED x 2 Accessible SIM cover x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 1 (Optional) LAN LED x 8	Power LED x 1 Status LED x 1 HDD Active LED x 1 Bypass LED x 2 (Optional) LAN LED x 12
Rear Panel	12V DC Power Input x 1 Power Button x 1 USB3.0 x 1 USB2.0 x 2 RJ-45 LAN x 4 RJ-45 Console x 1 Software Programmable Button x 1 VGA Port x 1 (Optional)	12V DC Power Input x 1 Power Button x 1 USB3.0 x 1 RJ-45 LAN x 4 RJ-45 Console x 1 Software Programmable Button x 1	12V DC Power Input x 1 Power Button x 1 USB3.0 x 1 USB2.0 x 2 RJ-45 LAN x 4 RJ-45 Console x 1 Software Programmable Button x 1	12V DC Power Input x 1 Power Button x 1 USB2.0 x 2 RJ-45 LAN x 6 RJ-45 Console x 1 Software Programmable Button x 1



Selection Guide



Model	FWS-7820	FWS-7811	FWS-7810	FWS-7520
Platform				
Form Factor	1U Rackmount Network Platform	1U Rackmount Network Platform	1U Rackmount Network Platform	1U Rackmount Network Platform
Processor	Intel® 6th Generation Core™/ Xeon Processors	Intel® LGA1150 4th Gen Core™/ Xeon Processor	Intel® LGA1150 4th Gen Core™/ Xeon Processor	Intel® Xeon Processor SoC
Chipset	Intel® C236	Intel® C226	Intel® C226	Integrated
System Memory	DDR4 1600/1866/2133 UDIMM/ECC, Up to 64GB, 288-pin DIMM x 4	DDR3 1333/1600 UDIMM/ECC, up to 32GB, 240-pin DIMM x 4	DDR3 1333/1600 UDIMM/ECC, up to 32GB, 240-pin DIMM x 4	DDR4 1600/1866/2133 RDIMM/UDIMM/ECC, up to 128GB, 288 Pin DIMM x 4
Network				
Ethernet	1GbE x 6 + NIM	1GbE x 8 + NIM	1GbE x 8 + NIM	1GbE x 1 + 10 GbE x 2 + NIM
Bypass	Depends on NIM	2 ~ 4 (Depends on NIM)	2 ~ 4 (Depends on NIM)	Depends on NIM
NIM Slot	4	1	1	3
Display				
Graphic Controller	Intel® Integrated	Intel® Integrated	Intel® Integrated	IPMI integrated (Optional)
Connector	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)
Storage				
HDDs	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
CF/CFast/mSATA	CF socket x 1 (Optional CFast™ socket or mSATA slot)	CF socket x 1	CF socket x 1	CF socket x 1 (Optional CFast™ socket or mSATA slot)
Expansion/Internal Interface				
PCIe slot	PCIe [x4] signal use [x16] slot (Optional)	PCIe [x8] slot x 1 (Optional)	PCIe [x8] slot x 1 (Optional) or PCIe [x8] slot x 2, cannot use w/ NIM (Optional)	PCIe [x4] signal use [x8] slot
Mini-card slot	—	—	—	—
IPMI	—	—	—	Optional Module
Keyboard & Mouse	Reserve pin-header	Reserve pin-header	Reserve pin-header	Reserve pin-header
Universal Serial Bus	USB 3.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 2 Box Header (2.0mm) (optional)	USB 3.0 x 2 Box Header (2.0mm) (optional)
Miscellaneous				
RTC	Internal RTC	Internal RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	Yes	—	—	Yes
GPIO	8 bits, BIOS default 4 bits input, 4 bits output.	—	—	8bits, BIOS default 4 bits input, 4bits output.
FAN	3	2	2	3
MTBF (Hours)	—	97,000	115,000	—
Color	Black	Black	Black	Black
Environmental Parameters and Dimension				
Power Requirement	250W ATX PSU	275W Redundant PSU	250W ATX PSU	180W ATX PSU or 220W Redundant PSU (Optional)
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10 ~ 80%	10 ~ 80%	10 ~ 80%	10 ~ 80%
Storage Humidity	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 18.7" x 1.73" (430mm x 475mm x 44mm)
I/O Interfaces				
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 (Optional w/ NIM slot) Software Programmable Switch x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN ports Link/Active LED x 8 Bypass LED (Default 2 LEDs) USB 3.0 Ports x 2, RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN ports Link/Active LED x 8 Bypass LED (Default 2 LEDs) USB 3.0 Ports x 2, RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 3.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1
Rear Panel	AC Power Input x 1 Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 1 (Optional PCIe [x4] signal use [x16] slot)	AC Power Input x 2 Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 2 (Optional)	AC Power Input x 1 Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 2 (Optional)	AC Power Input x 1 Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 1 (Optional PCIe [x4] signal use [x8] slot)

Selection Guide



Model	FWS-7400	FWS-7350	FWS-7250	FWS-8500
Platform				
Form Factor	1U Rackmount Network Platform	1U Rackmount Network Platform	1U Rackmount Network Platform	2U Rackmount Network Platform
Processor	Intel® LGA1150 4th Gen Core™ Processor	Onboard Intel® C2758/C2558 4 Core™/ 8 Core™ 2.4 GHz Processor SoC	Intel® Atom™ E3845, up to 1.91 GHz/ Celeron® J1900 up to 2.42 GHz	Intel® Haswell-EP Xeon E5-2600 v3 Series, LGA 2011
Chipset	Intel® H81	Integrated	Integrated	Intel® Coletto Creek 8925 PCH
System Memory	DDR3L 1333/1600 UDIMM, up to 16GB, 240-pin DIMM x 2	DDR3L 1600 UDIMM/ECC, up to 64GB, 240-pin DIMM x 4	DDR3(L) 1333 SODIMM, up to 8GB, 204 Pin DIMM x 2	DDR4 1600/1866/2133 RDIMM, Up to 128GB, 288-Pin DIMM x 16 (8 DIMM Per CPU)
Network				
Ethernet	1GbE x 6 + NIM	1GbE x 4 + NIM	1GbE x 4	Depends on NIM, onboard 1GbE LAN x 1 (Optional 1GbE LAN x 2)
Bypass	2 ~ 4 (Depends on NIM)	2 ~ 4 (Depends on NIM)	2	Depends on NIM
NIM Slot	1	1	—	8
Display				
Graphic Controller	Intel® Integrated	Mini-card VGA (Optional)	Intel Integrated	Mini-card VGA (Optional)
Connector	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)	VGA cable (Optional)
Storage				
HDDs	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)	2.5" SATA HDD x 1 (Optional)	Internal 3.5" SATA HDD x 1 or 2.5" SATA HDD x 2 (Optional)
CF/CFast/mSATA	CF socket x 1	CF socket x 1	CF socket x 1	CF socket x 1
Expansion/Internal Interface				
PCIe slot	PCIe [x8] slot x 1 (Optional), cannot use w/ NIM	PCIe [x4] signal use [x8] slot	—	PCIe [x8] slot x 2 (Optional)
Mini-card slot	—	—	1	1
IPMI	—	—	—	—
Keyboard & Mouse	Reserve pin-header	Reserve pin-header	Reserve pin-header	Reserve pin-header
Universal Serial Bus	USB 2.0 x 2 Box Header (2.0mm) (optional)	USB 2.0 x 1 Box Header (2.0mm) (optional)	USB 2.0 x 1 Box Header (2.0mm) (optional)	USB x 2 for internal pin-header (optional)
Miscellaneous				
RTC	Internal RTC	Internal RTC	Internal RTC	Internal RTC
Watchdog Timer	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable	1~255 steps by software programmable
Software Button	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1	GPIO Programmable push button x 1
TPM	—	—	—	TPM v1.2
GPIO	—	—	—	8 bits, BIOS default 4 bits input, 4 bits output.
FAN	2	1	2	5
MTBF (Hours)	106,000	109,000	110,000	—
Color	Black	Black	Black	Black
Environmental Parameters and Dimension				
Power Requirement	250W ATX PSU	100W ATX PSU	100W ATX PSU	650W Redundant PSU
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Storage Temp.	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	10 ~ 80%	10 ~ 80%	10 ~ 80%	10 ~ 80%
Storage Humidity	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing	10 ~ 80% @ 40°C, non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation	0.5 Grms/ 5 ~ 500Hz/ operation (3.5" H.D.D) 1.5 Grms/ 5 ~ 500Hz/ no operation
Shock	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation	10 G peak acceleration (11 m sec. duration), operation 20 G peak acceleration (11 m sec. duration), non-operation
Chassis Dimension (W x D x H)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 12.01" x 1.73" (430mm x 305mm x 44mm)	16.93" x 11.02" x 1.73" (430mm x 280mm x 44mm)	18.9" x 23.62" x 3.46" (480mm x 600mm x 88mm)
I/O Interfaces				
Front Panel	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN ports Link/Active LED x 6 Bypass LED (Default 2 LEDs) USB 3.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN ports Link/Active LED x 4 Bypass LED (Default 2 LEDs) USB 2.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 LAN ports Link/Active LED x 4 Bypass LED (Default 2 LEDs) USB 2.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1	Power LED x 1 Status LED x 1 HDD Active LED x 1 USB 2.0 Ports x 2 RJ-45 Console x 1 Parallel LCM display and 4 keypad x 1 Software Programmable Switch x 1 RJ-45 LAN x 1 (Optional RJ-45 LAN x 2)
Rear Panel	AC Power Input x 1 Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 2 (Optional)	AC Power Input x 1, Power Switch x 1 VGA port (Optional) Rear Expansion Slot x 2 (Optional PCIe [x4] signal use [x8] slot)	AC Power Input x 1 Power Switch x 1 VGA port (Optional)	AC Power Input x 1 Power Switch x 1 Rear Expansion Slot x 1 (Optional PCIe [x8])



Selection Guide



Model	NIM-S26A	NIM-S26B	NIM-S13A	NIM-S13B	NIM-S13C	NIM-S13D
Form Factor	10G Fiber Module	40G Fiber Module	1G LAN Module	1G Fiber Module	1G Fiber Module	1G Fiber Module
Main Chipset	Intel® XL710 Ethernet Controller x 1	Intel® Fortville XL710 Ethernet Controller x 1	Intel® 825080EB Ethernet Controller x 2	Intel® 82580EB Ethernet Controller x 2	Intel® 82580DB Ethernet Controller x 2	Intel® 82580EB Ethernet Controller x 1
Bypass	—	—	—	—	—	—
Host Interface	PCI-Express [x8]	PCI-Express [x8]	PCI-Express [x8] (x4 + x4)	PCI-Express [x4]	PCI-Express [x8] (x4 + x4)	PCI-Express [x4]
LAN Port	SFP+ 10 GbE Connector x 4	QSFP 40GbE Connector x 2	SFP 1 GbE Connector x 8	SFP 1GbE Connector x 8	SFP 1GbE Connector x 4	SFP 1GbE Connector x 4
Indicator	LED x 4 for Active/Link	LED x 2 for Active/Link	—	LED x 8 for Active/Link	LED x 4 for Active/Link	LED x 4 for Active/Link
Qualification	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Dimension	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)
Note	—	—	—	—	—	—



Model	NIM-C13A(8 Ports)	NIM-C13A(4 Ports)	NIM-C13B	NIM-C13C	PER-C41L	PER-C40L
Form Factor	1G LAN Module	1G LAN Module	1G LAN Module	1G LAN Module	1G LAN Module	1G Fiber Module
Main Chipset	Intel® 82580EB Ethernet Controller x 2	Intel® 82580DB Ethernet Controller x 2	Intel® 82580EB Ethernet Controller x 2	Intel® 82580EB Ethernet Controller x 1	Intel® 82580EB Ethernet Controller x 1	Intel® 82580EB Ethernet Controller x 1
Bypass	2	2	—	—	2	—
Host Interface	PCI-Express [x8] (x4 + x4)	PCI-Express [x4]	PCI-Express [x8] (x4 + x4)	PCI-Express [x4]	PCI-Express [x4]	PCI-Express [x4]
LAN Port	1GbE Connector x 8	1GbE Connector x 4	1GbE Connector x 8	1GbE Connector x 4	1GbE Connector x 4	SFP 1GbE Connector x 4
Indicator	LED x 8 for Active/Link	LED x 4 for Active/Link	LED x 8 for Active/Link	LED x 4 for Active/Link	LED x 4 for Active/Link	LED x 4 for Active/Link
Qualification	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Dimension	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.71" x 3.03" (145mm x 77mm)	5.43" x 3.46" (137.8mm x 88mm)	5.43" x 3.46" (137.8mm x 88mm)
Note	—	—	—	—	—	—



Model	PER-C39L	PER-C38L	PER-C37L	PER-C36L	PER-C35L
Form Factor	1G Fiber Module	1G LAN Module	1G LAN Module	1G Fiber Module	10G Fiber Module
Main Chipset	Intel® 82580EB Ethernet Controller x 2	Intel® 82580EB Ethernet Controller x 2	Intel® i350-AM4 Ethernet Controller x 2	Intel® i210 Ethernet Controller x 4	Intel® 82599 Ethernet Controller x 1
Bypass	—	4	2	—	—
Host Interface	PCI-Express [x8] (x4 + x4)	PCI-Express [x8] (x4 + x4)	PCI-Express [x8] (x4 + x4)	PCI-Express [x4]	PCI-Express [x8]
LAN Port	SFP 1GbE Connector x 8	1GbE Connector x 8	1GbE Connector x 8	SFP 1GbE Connector x 4	SFP 10GbE Connector x 2
Indicator	LED x 8 for Active/Link	LED x 8 for Active/Link	LED x 8 for Active/Link	LED x 4 for Active/Link	LED x 2 for Active/Link
Qualification	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A	CE/FCC Class A
Operation Temp.	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)	32°F ~ 104°F (0°C ~ 40°C)
Dimension	5.43" x 3.46" (137.8mm x 88mm)	5.43" x 3.46" (137.8mm x 88mm)	5.43" x 3.46" (137.8mm x 88mm)	5.43" x 3.46" (137.8mm x 88mm)	5.43" x 3.46" (137.8mm x 88mm)
Note	—	—	—	—	—

Selection Guide



Model	FWB-2250	FWB-7250	FWB-7350	FWB-7401	FWB-7811
System					
Form Factor	Networking Motherboard	Mini-ITX / Networking Motherboard	Networking Motherboard	Networking Motherboard	Networking Motherboard
Processor	Intel® Atom™ E3815 processor SoC	Intel® Celeron® J1900 2.0 GHz, Intel® Atom™ E3845 1.91 GHz	Intel® C2758 2.4 GHz (8 Core) Intel® C2558 2.4 GHz (Quad Core)	Intel® LGA1150 4th Generation Core™ Processor	Intel® LGA1150 4th Generation Core™/ Xeon Processor
System Memory	204-pin DDR3L 1066/1333 MHz SODIMM x 2, up to 8 GB	204-pin DDR3L 1333MHz SODIMM x 2, up to 8GB	240-pin Dual channel ECC or non-ECC DDR3L 1600MHz UDIMM x 4, up to 64GB	240-pin Dual channel DDR3L 1333/1600MHz UDIMM x 2, up to 16GB	240-pin Dual channel ECC or non-ECC DDR3L 1333/1600MHz UDIMM x 4, up to 32GB
Chipset	—	—	—	H81	C226
Ethernet	Intel® Ethernet Controller I211-AT, Gigabit Ethernet x 4	Intel® I210-AT (Co-lay with Intel® I211-AT), Gigabit Ethernet x 4	Marvel® PHY x 1, Gigabit Ethernet x 4	Intel® I211AT Gigabit Ethernet x 6	Intel® I211AT Gigabit Ethernet x 8
Bypass Function	1 Pair (Optional)	Supports up to 2 Pair	Supports 2 pair bypass function	Supports 2 pair bypass function	Supports 2 pair bypass function
BIOS	AMI BIOS	AMI BIOS	AMI BIOS	AMI BIOS	AMI BIOS
Serial ATA	SATA 3.0 Gb/s Connector x 2, (Optional CompactFlash™ Socket x 1)	CompactFlash Socket x 1, SATA II connector x 1 (Optional SATA II connector x 2)	SATA 6.0 Gb/s connector x 2, SATA 3.0 Gb/s connector x 3 CF socket x 1	SATA 6.0 Gb/s connector x 2 CF socket x 1	SATA 6.0 Gb/s connector x 5 CF socket x 1
Expansion Interface	Mini-Card Socket x 1(Optional)	Mini-Card socket w/ SIM card socket x 1	Mini-Card Slot x 1 (Full size)	Optional by riser card	Optional by riser card
Power Requirement	40W, 12V DC-in power connector	ATX 100W PSU	Flex ATX 24-pin connector 4-pin DC power out connector for HDD x 5	Flex ATX 24-pin connector 4-pin DC power out connector for HDD x 2	Flex ATX 24-pin connector 4-pin DC power out connector for HDD x 5
Power Consumption	Intel® Celeron® J1900 2.0 GHz, DDR3L 1333 2GB, 0.39A@ 100VAC, 1.21A@12V	Intel® Celeron® J1900 2.4 GH, DDR3L 1600 4GB, 0.26A@ 100VAC	Intel® C2558 2.4 GHz, DDR3-1333 4GB 0.39A@ 100VAC, 37.4W	Intel® I7-4770S 3.1GHz, DDR3-1600 4GB x 2, 1.27A@ 100VAC, 127.2W	Intel® Xeon E3-1225 V3 3.2GHz, DDR3-1333 4GB x 2, 1.42A@ 90VAC, 127.4W
Board Size	5.67" x 3.94" (114 mm x 100 mm)	6.7" x 6.7" (170mm x 170mm)	7.56" x 7.17" (192mm x 182mm)	10.43" x 7.56" (265mm x 192mm)	10.43" x 7.56" (265mm x 192mm)
Watchdog Timer	1~255 steps by software programming	1~255 steps by software programming	1~255 steps by software programming	1~255 steps by software programming	1~255 steps by software programming
MTBF (Hours)	90,000	110,000	109,334	106,215	115,771
OS support	Windows® 7 or above, Linux	Windows® 7 or above, Linux	Linux kernel 3.4 and above	Linux kernel 2.6 and above	Linux kernel 2.6 and above
Display					
Chipset	Intel® Atom™ E3815	Intel® Celeron® J1900 Intel® Atom™ E3845	—	H81	C226
Graphic Engine	Intel® HD	Intel HD Graphic	—	Integrated	Integrated
Resolution	2560 x 1600	2560 x 1600	—	—	—
Outer Interface	Reserved VGA Internal box header	Reserved Pin Header for Graphic Integrated Processor	—	Reserve internal VGA pin header x 1	Reserve internal VGA pin header x 1
I/O					
LAN Port	RJ-45 Port x 4	RJ-45 Port x 4	RJ-45 Port x 4	RJ-45 Port x 6	RJ-45 Port x 8
Serial Port	RJ-45 Console x 1	RJ-45 Console x 1	RJ-45 Console x 1	RJ-45 Console x 1	RJ-45 Console x 1
USB	USB 2.0 x 2, USB 3.0 x 1(Optional)	USB 2.0 x 2	USB2.0 x 2	USB3.0 x 2	USB3.0 x 2
LED	Power LED x 1 HDD Active x 1 LAN LED x 8 (Optional Status LED x 1, Bypass LED x 1)	Power LED x 1 Status LED x 1 HDD Active x 1 Bypass LED x 2 (Optional)	Power LED x 1 HDD Active x 1 Status LED x 1 LAN LED x 1 (Optional Bypass LED x 2)	Power LED x 1 HDD Active x 1 Status LED x 1 LAN LED x 1 (Optional Bypass LED x 2)	Power LED x 1 HDD Active x 1 Status LED x 1 LAN LED x 1 (Optional Bypass LED x 2)
Others	Power Button x 1 Software Programmable Reset Button x 1	Software Programmable Reset Button x 1	Power Button x 1 Software Programmable Reset Button x 1	Power Button x 1 Software Programmable Reset Button x 1	Power Button x 1 Software Programmable Reset Button x 1
Environment					
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing	0%~90% @RH, non-condensing