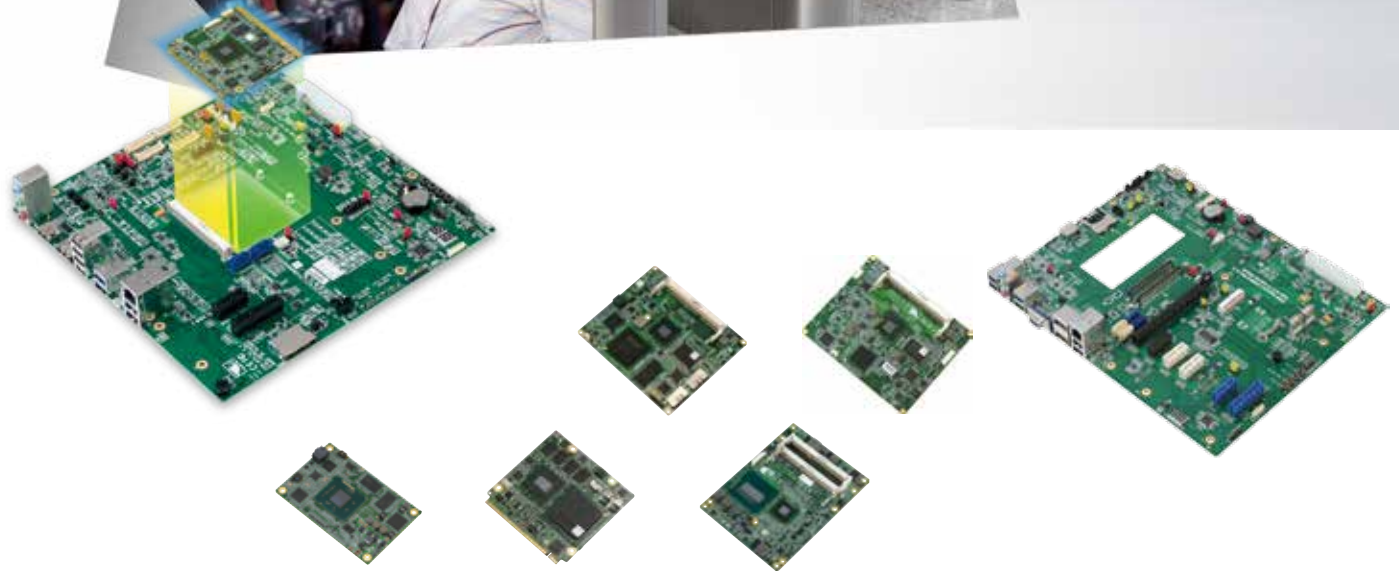
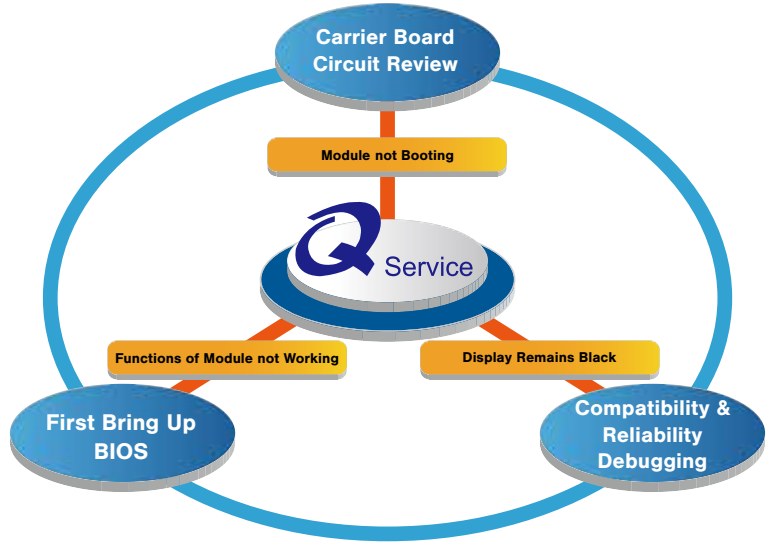


Get Smart With AAEON COM Express

Secure Your Design with AAEON's Q Service



AAEON's Q Service Overview



What is Q Service?

Q Service is a Quick and Quality Service for reducing the time spent on trouble shooting and expediting the development process. With COM technology getting more and more complex and versatile, product failure can originate from numerous ways and may be difficult to identify. AAEON's Q Service helps our customers to have new product's time-to-market with AAEON's full supports from Hardware, Software, and Firmware teams (RD resources).

AAEON Q Service Commitments:

- (1) Quick Carrier Board Schematic Review within FIVE working days -Absolutely FREE!
- (2) Quick Bring up BIOS within FIVE working days -Absolutely FREE!
- (3) Quick compatibility and reliability debug services and feedback within 72 hours
- (4) Quick arrangement for on-site service and consultation

Q Service:

- (1) Worry Less for upgrade
- (2) Faster time-to-market
- (3) Cost savings
- (4) Reduced design risks
- (5) Long-term support



AAEON Carrier Board Design Service

With more than 20 years of quality design and manufacture experiences, AAEON provides professional carrier board design services as well. These carrier boards will be designed according to customer's specifications, and pass all compatibility and functional tests required in the process. There are also default carrier boards for evaluation purposes.



NanoCOM Module



Qseven Module



COM Module



ETX Module



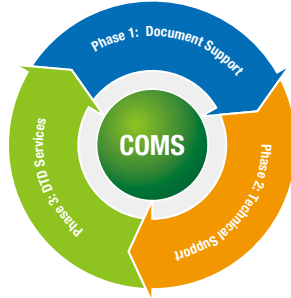
XTX Module



Carrier Board

AAEON's Computer On Module Service (COMS) Overview

COM (Computer On Module) is a compact CPU board that integrates primary functions into a small form factor module. Simply design your carrier board with I/O ports and enjoy the following benefits:



- (1) Easy installation, maintenance and upgrade
- (2) Faster time to market
- (3) Reduce cost over generations of product
- (4) Minimize design efforts
- (5) Long last industrial standards

> What is COMS (Computer On Module Service)?

COMS (Computer On Module Service) is a service for customers who use AAEON's COM modules. There are three phases for COMS:

Phase 1: Document Support

AAEON provides:

- (1) Reference Schematics
- (2) Design Rules
- (3) Layout Guidelines
- (4) Check List

Phase 2: Technical Support

AAEON provides:

- (1) Assign experienced engineer to provide professional suggestions
- (2) Schematics review of carrier board (upon customer request)
- (3) AAEON Q-Service

Phase 3: DTD Services

DTD (Design to Delivery) for custom carrier boards:

AAEON's ESS(Embedded Service Section) team will review the information you provide and offer suggestions.

- (1) DTD is designed to shorten time to market and minimize loading on your resources.
- (2) ESS Team will work closely with you to determine detailed specifications of your custom carrier board.
- (3) After approval of specification, AAEON can deliver a working prototype within 30 working days.
- (4) You can focus on your own applications and maximize your resource allocations.
- (5) "Shorten" time to market can lead to higher success rate and larger market share.

You can select different phases and support options based on your needs.

> Main Differences - COM Express

Connector Pin-Out – COM Express

Types	Connector Rows	PCI Express Lanes	PEG/SDVO	PCI	IDE	SATA	LAN	USB 2.0/USB 3.0	Display Interfaces
Type 1	A-B	Up to 6	—	—	—	4	1	8 / 0	VGA, LVDS
Type 2	A-B C-D	Up to 22	1 / 2	32-bit	1	4	1	8 / 0	VGA, LVDS, PEG/SDVO
Type 6	A-B C-D	Up to 24	1 / —	—	—	4	1	8 / 4	VGA, LVDS/eDP, PEG, DDI x 3
Type 10	A-B	Up to 4	— / 1	—	—	2	1	8 / 2	LVDS/eDP, DDI x 1

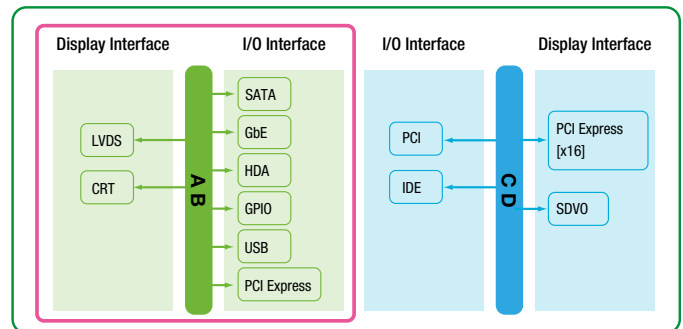
- (1) Type 6 & 10: No IDE, PCI support
- (2) Type 6: 4 x USB 3.0 support

Function Of Connector

- (1) Row AB is basic:
Provides PCI-E x 1 / SATA / LAN / USB / LVDS / VGA / Express Card / HDA / LPC Bus / WDT / GPO / GPI / SMBus / Power & Ground signals
- (2) Row CD is optional:
Provides PCI-E x 16 / PCI / IDE / SDVO option / Power & Ground signals

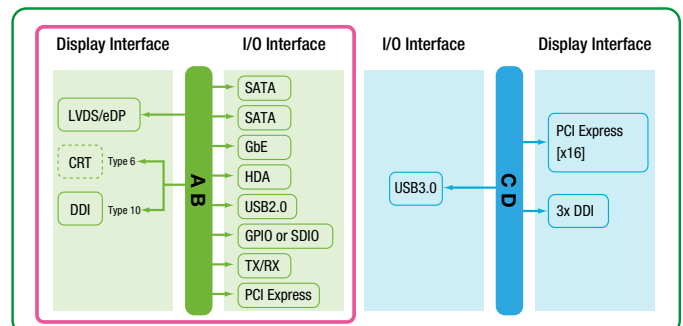
> COM.0.R20 Type 1 & Type 2

— Type 2
— Type 1



> COM.0.R20 Type 6 & Type 10

— Type 6
— Type 10



Comparison Table of ETX/ XTX/ Qseven/ COM/ SMARC Express Modules

➤ Comparison Table of NanoCOM and Qseven and SMARC

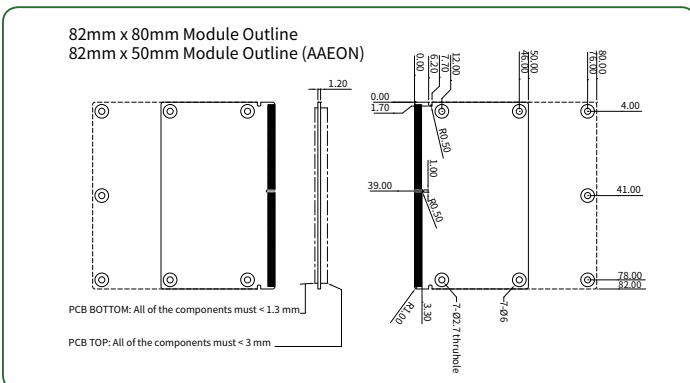
Connector \ Model	Qseven	NanoCOM	SMARC
Power Consumption	Low (Max.: 12W)	High (Max.: 77W)	Low (Max. in spec.: 6W)
VGA	—	Yes	—
SDVO	Down through edge connector	SDVO connector on the module	—
Connector Cost	Low	High	Low
PCB Size	Almost the same Qseven, 4900 mm ² vs NanoCOM, 4620 mm ²		4100 mm ²
Platform Cost	Low	High	Low
Ruggedized	Normal	Better	Normal
HDMI/DVI/DP	YES	YES DDI to convert to required video signals x 1	YES

➤ Support Matrix of AAEON's ETX/ XTX/ Qseven/ COM/ SMARC Express Carrier Boards

ECB-910	ECB-902M	ECB-970	ECB-960	ECB-920A	ECB-916M
XTX-CV-A11	ETX-LN-A11 ETX-701-A10	AQ7-BT-A10 AQ7-IMX6-A10 AQ7-LN-D10	uCOM-BT-A10	COM-QM87-A10 COM-QM77-B11 COM-HM76-C10 COM-BT-A10 COM-CV-B10 COM-KB-A10 NANOCOM-BT-A10 NANOCOM-CV-B10 NANOCOM-CV-A10	COM-QM57-A11 COM-CV-A11 COM-LN-B10

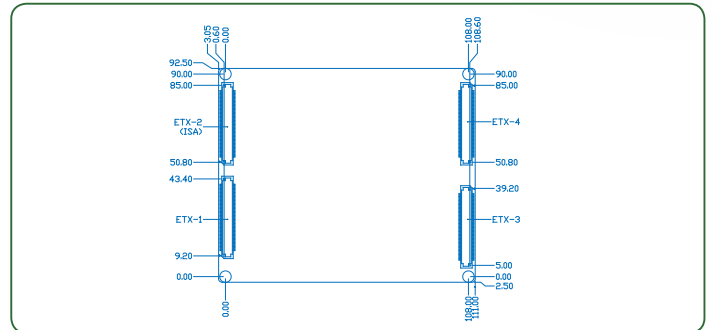
➤ Mechanical Drawings of SMARC Express Modules

SMARC Module

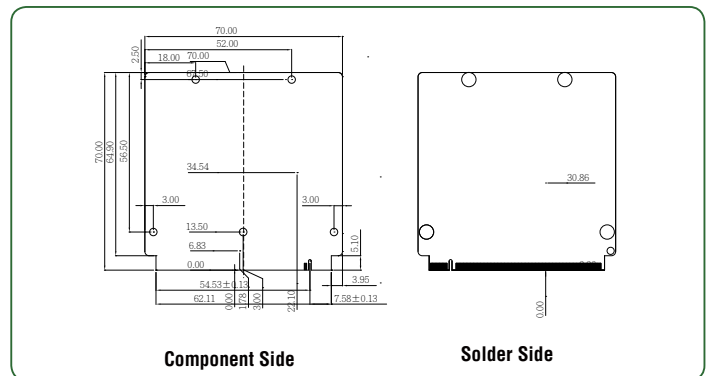


➤ Mechanical Drawings of ETX/ XTX/ Qseven/ COM Express Modules

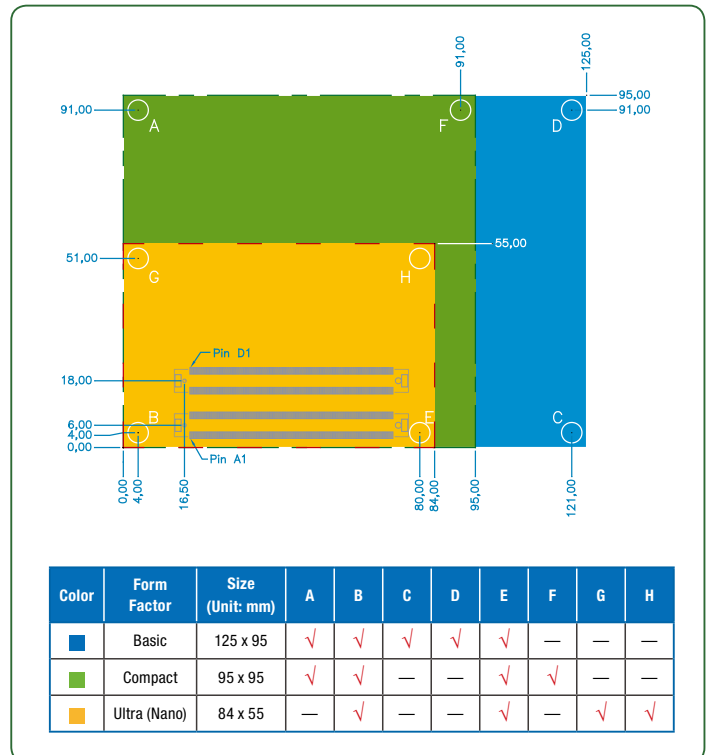
ETX/ XTX/ Qseven Module



Qseven Express Module



COM Express Module



Comparison Table of ETX/ XTX/ Qseven/ COM/ SMARC Express Modules

Form Factor	ETX	XTX	COM Express	Qseven	SMARC
Size	114 mm x 95 mm	114 mm x 95 mm	Ultra (Nano) module: 84 mm x 55 mm Compact module: 95 mm x 95 mm Basic module: 125 mm x 95 mm	70 mm x 70 mm	82 mm x 50 mm 82 mm x 80 mm
PCB Thickness	1.6mm	1.6mm	2.0mm	1.2mm	1.2mm
Mounting Hole (Default)	x 4	x 4	x 4: Ultra (Nano) module, Compact module x 5: Basic module	x 4	x 4
Connector	100-pin connector x 4 Supplier: Hirose	100-pin connector x 4 Supplier: Hirose	220-pin connector x 1 or 2 Supplier: AMP (Tyco)/ Foxconn	Module: Edge connector Carrier board: 230-pin MXM connector	Module: Edge connector Carrier board: 314-pin MXM connector
Pin-out	One Type, except 1. LVDS/TTL 2. FDD/Parallel Port	One Type, except 1. LVDS/TTL 2. FDD/Parallel Port	PICMG COM.0 R2.0	Q7 2.0 spec	SMARC VIPI
No. of Vcc	21	24	29 (Max.)	20	10
Operating Voltage	+5V, +5VSBY Vcc_RTC for RTC battery	+5V, +5VSBY Vcc_RTC for RTC battery	+12V, +5VSBY Vcc_RTC for RTC battery	+5V, +5VSBY Vcc_RTC for RTC battery	3.0V to 5.25V
Rating Current/Pin	0.4A @ 25°C	0.4A @ 25°C	0.5A @ 25°C	0.5A @ 25°C	0.5A @ 25°C
Input Power (Max.)	Spec: N/A, Reference: 42W (21 x 5 x 0.4 = 42)	Spec: N/A, Reference: 48W (24 x 5 x 0.4 = 48)	Spec: 154W (Pin-out Type 2 to 6) (12 x 12 + 5 x 2 = 154)	Spec: 12W	Spec: 6W
PCI Express Lane (Max.)	—	x 4	x 22 (Pin-out Type 2) (x 16 for Graphics included)	x 4	x 3
LVDS (Max.)	24-bit dual-channel	24-bit dual-channel	24-bit dual-channel	24-bit dual-channel	24-bit single-channel
SDVO Channel (Max.)	—	—	x 2 (Pin-out Type 2)	x 1	—
TMDS/ DVI/ HDMI	—	—	Being discussed in PICMG	x 1	x 1
DisplayPort	—	—	Being discussed in PICMG	x 1	—
PATA Channel (Max.)	x 2	x 2	x 1 (Pin-out Type 2)	—	—
SATA Channel (Max.)	x 2	x 4	x 4	x 2	x 1
Audio	2-ch audio (Line-in, Line-out, MIC in) (Codec on the module)	2-ch audio on x 1 connector (Line-in, Line-out, MIC in, Codec on the module) AC'97 digital audio interface on X2 connector	AC'97 digital audio interface or High definition audio interface (Codec on the carrier board)	High definition audio interface (Codec on the carrier board)	I2S X3 (1 Multiplexed with HDA)
LPC Interface	—	x 1	x 1	x 1	—
USB 2.0 Port (Max.)	x 4	x 6	x 8	x 8 (USB Port #1 can be used as USB client port)	x 3 (USB Port #0 can be used as USB client port)
LAN (Max.)	10/100 Base-TX x 1 only	10/100 Base-TX x 1 only	GbE x 1	GbE x 1	GbE x 1
ExpressCard Support (Max.)	—	x 2	x 2	x 2	—
Secure Digital I/O	—	—	8-bit (Multiplexed with GPIO pins)	x 1, 8-bit	x 1 (4 bit, for SD cards)
Low-speed I/O	Signals from the XTX module (Super I/O on the module) COM x 2 FDD or Parallel port x 1 IrDA x 1 K/B and Mouse x 1	—	Signals from carrier board (Super I/O on the carrier board)	Signals from carrier board (Super I/O on the carrier board)	Signals from the SMARC module (Super I/O or EC on the module) COM x 4 (4 wire x 2; 2 wire x 2) SPI x 2 (1 for boot) CAN Bus x 2
SM Bus	x 1	x 1	x 1	x 1	—
I2C Bus	x 1	x 1	x 1	x 1	x 4
ISA Bus	Yes	—	—	—	—
WDT	x 1	x 1	x 1	x 1	x 1
Overall Module Height (Recommended)	9.6 mm (From the PCB bottom surface of module to the top surface of heatspreader)	9.6 mm (From the PCB bottom surface of module to the top surface of heatspreader)	13 mm (From the PCB bottom surface of module to the top surface of heatspreader)	9.2 mm (From the PCB bottom surface of module to the top surface of heatspreader)	9.2 mm (From the surface of bottom side components to the surface of top side components)
Platform Cost	Lower	Lower	Higher 1. High-speed signals 2. Power conversion 3. Cost of connectors	Lower	Lower
Advantage	1. Lower platform cost (but module cost may be higher than COM Express module) 2. Easier design for carrier board 3. Well-known specification	1. Lower platform cost (but module cost may be higher than COM Express module) 2. Easier design for carrier board 3. Compatible with ETX 2.7 except ISA bus 4. More USB 2.0 ports than ETX 5. AC'97 digital audio interface available (Compared with ETX) 6. LPC interface available (Compared with ETX)	1. Introduce serial technologies 2. Suitable for the platform with higher power consumption 3. CPUs with higher TDP and better performance available 4. PICMG defined open standard	1. Lower platform cost (Connectors) 2. Introduce serial technologies 3. Support new video interfaces 4. Suitable for ultra mobile applications 5. Standard software API (Application Program Interface)	1. Lower power consumption 2. Lower platform cost (Connectors) 3. Support new display interfaces 4. Suitable for ultra mobile applications 5. Small PCB size
Parallel LCD	—	—	—	—	24-bit Parallel RGB interface
Camera	—	—	—	—	CSI0 – 2 lane x 1; CSI1 – 2/4 lane x 1 or Parallel Camera Interface (up to 16 bit) x 1
SDMMC	—	—	—	—	x 1 (8 bit, eMMC capable)
SPDIF	—	—	—	—	x 1

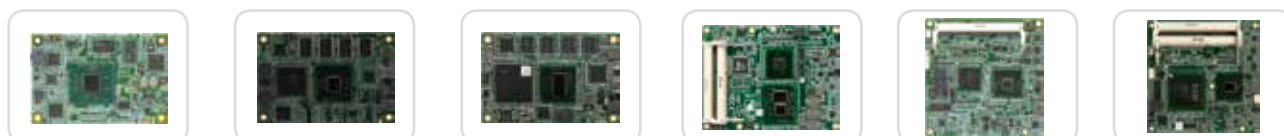
Selection Guide of AAEON's Qseven/ XTX/ COM Express Modules

> COM Express Modules (Type 6)



Model	COM-QM87-A10	COM-QM77-B11 (W1)	COM-HM76-C10	COM-BT-A10	COM-KB-A10	COM-CV-B10 (W2)
Form Factor	COM Express, Basic Module, Pin-out Type 6, COM. 0 Rev. 2.1	COM Express, Basic Module, Pin-out Type 6, COM. 0 Rev. 2.0	COM Express, Basic Module, Pin-out Type 6, COM. 0 Rev. 2.1	COM Express compact module, Pin-out Type 6, COM. 0 Rev. 2.1	COM Express compact module, Pin-out Type 6, COM. 0 Rev. 2.1	COM Express compact module, Pin-out Type 6, COM. 0 Rev. 2.0
CPU	Onboard 4th Generation Intel® Core™ i5 Processor	On board 3rd Gen. Intel® Core™ i7/i5/i3/ Celeron® (FCBGA1023)	Socket G2 for Intel® 2nd & 3rd Gen. Core™ i7/i5/i3/Pentium®/ Celeron® processor	Intel® Atom™/ Celeron® SOC Processor (D/M/I)	AMD® Embedded G-Series SoC APU	On board Intel® Atom™ N2600/D2550
Chipset	Intel® QM87	Intel® QM77 / HM76	Intel® HM76	Intel® Atom™/ Celeron® SOC Processor	AMD® Embedded G-Series SoC AMD GX-420CA SoC with AMD Radeon™ HD 8400E Graphics(Quad) GX-2176A SoC with AMD Radeon™ HD 8280E Graphics (Dual)	Intel® NM10
Memory Type	Non-ECC DDR3 / DDR3L 1333/1600	Non-ECC DDR3 1333/1600	Non-ECC DDR3L 1333/1600	Non-ECC DDR3L 1066/1333	Non-ECC DDR3/DDR3L 1333/1600	Non-ECC DDR3 1066
Max. Memory Capacity	Dual-Channel DDR3 / DDR3L 1333/1600MHz SODIMM, up to 16 GB	16GB, DDR3 SODIMM x 2 Supports Dual-Channel function	Single-channel SODIMM DDR3L 1333/1600 Memory, Max. 8 GB	DR3L1066/1333 Mhz SODIMM x 1, up to 8GB	204-pin DDR3/DDR3L 1600MHz SODIMM, Up to 8GB	4GB, DDR3 SODIMM x 1
Watchdog Timer	255 Levels	255 Levels	255 Levels	255 Levels	255 Levels	255 Levels
Ethernet	Intel® i217LM for 10/1000/1000Base-TX	Intel® 82579LM for 10/1000/1000Base-TX	Intel® 82579LM for 10/1000/1000Base-TX	Intel® I211AT for 10/1000/1000Base-TX	Realtek RTL8111E, 10/100/1000Base-TX	Intel® 82583V, 10/100/1000Base-TX
VGA/LCD Controller	Intel® Core™ i5 processor integrated	Intel® Core™ i7/ i5/i3/Celeron® processor integrated	Intel® Core™ i7/ i5/i3/Celeron® processor integrated	Intel® Atom™ SOC	AMD® Embedded G-Series SoC AMD GX-420CA SoC with AMD Radeon™ HD 8400E Graphics(Quad) GX-2176A SoC with AMD Radeon™ HD 8280E Graphics (Dual)	Intel® Atom™ N2600/D2550 processor integrated
Video Output	CRT, 18/24-bit Dual-Channel LVDS LCD, DDI x 3	CRT, 18/24-bit Dual-channel LVDS, DDI x 2	CRT, 18/24-bit Dual-channel LVDS, DDI x 2	CRT, Up to 24-bit Dual-channel LVDS/eDP (Optional), DDI x 1	CRT, 24-bit dual channel LVDS (24 x 2), eDP/LVDS (18 x 1), DDI x 2	CRT, LVDS, DDI
Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio
USB Port	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 8, USB 3.0 x 4	USB 2.0 x 7, USB 3.0 x 1	USB3.0 x 2, USB2.0 x 8	USB 2.0 x 8, USB 3.0 x 2
Serial Port	TX/RX x 2	TX/RX x 2	TX/RX x 2	TX/RX x 2	TX/RX x 2	TX/RX x 2
Parallel Port	—	—	—	—	—	—
Storage	SATA x 4	SATA x 4	SATA x 4	SATA x 2	SATA x 2	SATA x 2
Expansion Slot	PCI-Express [x16] x 1, PCI-Express [x1] x 7, LPC bus x 1, SMBus x 1	PCI-Express [x16] x 1, PCI-Express [x1] x 7, LPC bus x 1, SMBus x 1	PCI-Express [x16] x 1, PCI-Express [x1] x 7, LPC bus x 1, SMBus x 1	PCI-Express [x1] x 3, LPC bus x 1, SMBus x 1	PCI-Express [x1] x 5, LPC bus x 1, SMBus x 2, PCI-Express[x4] x 1(PEG)	PCI-Express [x1] x 4, LPC bus x 1, SMBus x 1
Power Requirement	Nominal: +12V	Nominal: +12V	Nominal: +12V	Nominal: +12V	Nominal: +12V, Optional: +8.5V ~ +19V	Nominal: +12V
Operating Temperature	32 °F ~ 140 °F (0 °C ~ 60 °C)	32 °F ~ 140 °F (0 °C ~ 60 °C) -4°F ~ -158°F (-20°C ~ -70°C) for WITAS 1	32 °F ~ 140 °F (0 °C ~ 60 °C)	32 °F ~ 140 °F (0 °C ~ 60 °C)	32 °F ~ 140 °F (0 °C ~ 60 °C) WITAS (Optional)	32 °F ~ 140 °F (0 °C ~ 60 °C) -40°F ~ -185°F (-40°C ~ -85°C) for WITAS 2
Dimension (L x W)	4.92" x 3.75" (125mm x 95mm)	4.92" x 3.75" (125mm x 95mm)	4.92" x 3.75" (125mm x 95mm)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)

> COM Express Modules (Type 10/Type 2)



Model	NanoCOM-BT-A10	NanoCOM-CV-B10	NanoCOM-TC-A10 (W2)	COM-QM57-A11	COM-CV-A11	COM-LN-B10
Form Factor	COM Express, Nano Module, Pin-out Type 10, COM. 0 Rev. 2.1	COM Express, Nano Module, Pin-out Type 10, COM. 0 Rev. 2.0	COM Express, Nano Module, Pin-out Type 10, COM. 0 Rev. 2.0	COM Express, Basic Module, Pin-out Type 2, COM. 0 Rev. 2.0	COM Express compact module, Pin-out Type 2, COM. 0 Rev. 2.0	COM Express compact module, Pin-out Type 2, COM. 0 Rev. 2.0
CPU	Intel® Atom™/ Celeron® SOC Processor (M/I)	On board Intel® Atom™ N2600	On board Intel® Atom™ E620/E680	On board Intel® Core™ i7/ i5/ Celeron® (FCBGA1288)	On board Intel® Atom™ N2600/D2550	On board Intel® Atom™ D525
Chipset	Intel® Atom™/ Celeron® SOC Processor	Intel® NM10	Intel® EG20T	Intel® QM57	Intel® NM10	Intel® Atom™ ICH8M
Memory Type	Onboard DDR3L	Non-ECC DDR3 1066	Non-ECC DDR2 667/800	Non-ECC DDR3 800/1066	Non-ECC DDR3 1066	Non-ECC DDR3 800
Max. Memory Capacity	2 GB DDR3L Onboard	2GB on board	1GB on board	8GB, DDR3 SODIMM x 2 Supports Dual-Channel function	4GB, DDR3 SODIMM x 1	4GB, DDR3 SODIMM x 2 Supports Dual-Channel function
Watchdog Timer	255 Levels	255 Levels	255 Levels	255 Levels	255 Levels	255 Levels
Ethernet	Intel® I211AT for 10/1000/1000Base-TX	Intel® 82583V, 10/100/1000Base-TX	Realtek RTL8211CL	Intel® 82577LM	Intel® 82583V, 10/100/1000Base-TX	Intel® 82567V, 10/100/1000Base-TX
VGA/LCD Controller	Intel® Atom™ SOC	Intel® Atom™ N2600 processor integrated	Intel® Atom™ E620/E680 processor integrated	Intel® Core™ i7/ i5/Celeron® processor integrated	Intel® Atom™ N2600/D2550 processor integrated	Intel® Atom™ D525 Integrated
Video Output	LVDS LCD/eDP, DDI x 1	Single 18-bit LVDS, DDI x 1	LVDS, SDVO, LCD	CRT, LVDS, LCD, DP, DVI, HDMI, SDVO	CRT, LVDS, DP	CRT, LCD, Single 18-bit LVDS
Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio	High Definition Audio
USB Port	USB2.0 x 6 + USB2.0/USB3.0 x 1	USB 2.0 x 8	USB2.0 x 6, USB (Client) x 1	USB 2.0 x 8	USB 2.0 x 8	USB 2.0 x 8
Serial Port	TX/RX x 2	TX/RX x 2	—	—	TX/RX x 2	—
Parallel Port	—	—	—	—	—	—
Storage	SATA x 2	SATA x 2 (1), SATA SSD on board (Master device), Max. 16GB	SATA x 1, SATA SSD on board (Master device), Max. 4GB	PATA x 1 (one device) SATA x 4	PATA x 1 (One device) SATA x 2	PATA x 1 (Two device) SATA x 3
Expansion Slot	PCI Express [x1] x 3, LPC Bus x 1, SMBus x 1	PCI-Express [x1] x 3, LPC bus x 1, SMBus x 1	4-bit SDIO: Multiplexed with GPIO pins PCI-Express [x1] x 3, LPC bus x 1, SMBus x 1	PCI-Express [x16] x 1, PCI-Express [x1] x 6 32-bit PCI x 4, LPC bus x 1, SMBus x 1	PCI Express [x1] x 3, LPC Bus x 1, SMBus x 1, 32-bit PCI x 2	PCI-Express [x1] x 5, 32-bit PCI x 4, LPC bus x 1, SMBus x 1
Power Requirement	Standard: +6.5V~20V AT/ATX Optional: +5V, AT/ATX	Nominal: +12V, +4.75V ~ +14.7V Optional: +4.75V ~ +14.7V	Nominal: +12V, +4.75V ~ +14.7V Optional: +4.75V ~ +14.7V	Nominal: +12V Optional: +8.5V ~ +19V	Nominal: +12V	Nominal: +12V Optional: +8.5V ~ +19V
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) -40°F ~ -185°F (-40°C ~ -85°C) for WITAS 2	32 °F ~ 140 °F (0 °C ~ 60 °C)	32 °F ~ 140 °F (0 °C ~ 60 °C)	32 °F ~ 140 °F (0 °C ~ 60 °C)
Dimension (L x W)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)	3.31" x 2.17" (84mm x 55mm)	4.92" x 3.75" (125mm x 95mm)	3.74" x 3.74" (95mm x 95mm)	3.74" x 3.74" (95mm x 95mm)

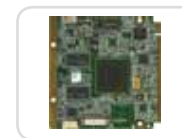
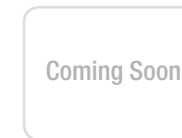
Selection Guide of AAEON's COM Express Modules

> COM Express (Type1)/ ETX/ XTX Modules



Model	NanoCOM-CV-A10	ETX-LN-A11	ETX-701-A10	XTX-CV-A11
Form Factor	COM Express, Nano Module, Pin-out Type 1, COM. 0 Rev. 2.0	ETX 3.0	ETX 3.0	XTX Specification Rev.1.2
CPU	On board Intel® Atom™ N2600	Intel® Atom™ D525/N455 D525: Dual Core Atom™ 1.86GHz N455: Single Core Atom™ 1.6GHz	AMD Geode™ LX Series Processor LX700: 433 MHz, LX800: 500 MHz (Default), LX900: 600 MHz	On board Intel® Atom™ N2600/D2550
Chipset	Intel® NM10	Intel® Atom™ ICH8M	AMD CS5536	Intel® NM10
Memory Type	Non-ECC DDR3 1066	DDR3 SODIMM x 1, Supports non-ECC DDR3 667/800	DDR SODIMM x 1, Supports Non-ECC DDR 333/400	Non-ECC DDR3 1066
Max. Memory Capacity	2GB on board	D525 Max.4GB, N455 Max.2GB	DDR 333: 1GB, DDR 400: 512MB	4GB, DDR3 SODIMM x 1
Watchdog Timer	255 Levels	255 Levels	255 Levels	255 Levels
Ethernet	Intel® 82583V, 10/100/1000Base-TX	Realtek RTL8105E-VL-CG, 10/100Base-TX	Realtek RTL8139DL, 10/100Base-TX	Realtek RTL8105E, 10/100 Base-TX
VGA/LCD Controller	Intel® Atom™ N2600 processor integrated	Intel® Atom™ D525 Integrated	AMD LX processor integrated	Intel® Atom™ N2600/D2550 processor integrated
Video Output	CRT, Single 18-bit LVDS	CRT, 24-bit LVDS	CRT, 18/24-bit TTL/LVDS	CRT, LVDS
Audio	High Definition Audio	Realtek HD Audio ALC662-GR	Realtek ALC203	High definition audio
USB Port	USB 2.0 x 8	USB 2.0 x 4	USB2.0 x 4	USB 2.0 x 6
Serial Port	—	UART x 2 (for CTS#, DSR#, RTS#, DTR#, RX, TX, DCD#, RI#)	UART x 2 (for CTS#, DSR#, RTS#, DTR#, RX, TX, DCD#, RI#)	UART x 2
Parallel Port	—	Parallel port x 1	Parallel port x 1	Parallel port x 1
Storage	—	PATA x 1 (two devices), SATA 3.0Gb/s x 2 (on module)	PATA x 2 (four devices), SATA 3.0Gb/s x 2 (on module), CompactFlash Type 1 slot x 1 (on module)	PATA x 1 (One device), SATA x2
Expansion Slot	PCI-Express [x1] x 3, LPC bus x 1, SMBus x 1	32-bit PCI x 4, ISA bus x 1, SMBus x 1	32-bit PCI x 4, ISA bus x 1, SMBus x 1, I2C x 1	PCI Express [x1] x 4, LPC Bus x 1, SMBus x 1, 32-bit PCI x 4
Power Requirement	Nominal: +12V, +4.75V ~ +14.7V Optional: +4.75V ~ +14.7V	+5V DC, +5VSBY (Optional) Vcc_RTC for RTC battery (Optional, +2.0V ~ +3.3V)	+5V DC, +5VSBY (Optional) Vcc_RTC for RTC battery (Optional, +2.0V ~ +3.3V)	+5V DC
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)
Dimension (L x W)	3.31" x 2.17" (84mm x 55mm)	4.5"x 3.74" (114mm x 95mm)	4.5"x 3.74" (114mm x 95mm)	4.5" X 3.74" (114mm x 95mm)

> SMARC/ Qseven Modules



Model	uCOM-BT-A10	AQ7-LN-D10	AQ7-BT-A10	AQ7-IMX6-A10
Form Factor	SMARC Version 1.0	Qseven Rev. 2.0	Qseven Rev. 2.0	Qseven Rev. 2.0
CPU	Intel® Atom™ SOC Processor	Intel® Atom™ N455	Intel® Atom™ SOC Processor	Freescape® i.MX6 SoC Processor
Chipset	Intel® Atom™ E3800 series	Intel® Atom™ ICH8M	Intel® Atom™ E3800 series	Freescape® i.MX6 Quad 1.0GHz Processor (Automotive) Freescape® i.MX6 Quad 1.0GHz Processor (Commercial) Freescape® i.MX6 Dual Lite 800MHz Processor (Commercial)
Memory Type	Onboard DDR3L	Non-ECC DDR3 667 memory chip on board	Onboard DDR3L	Onboard DDR3 1066MHz (Quad) Onboard DDR3 800MHz (Dual lite)
Max. Memory Capacity	2 GB	2GB	2GB	Onboard DDR3 1066MHz, 1GB, up to 2GB (Quad) Onboard DDR3 800MHz, 1GB, up to 2GB (Dual lite)
Watchdog Timer	255 Levels	255 Levels	255 Levels	Integrated Watch Dog and Timer
Ethernet	Intel® I211AT, 10/1000/1000Base-TX	Intel® 82567V, 10/1000/1000Base-TX	Intel® I211AT, 10/1000/1000Base-TX	Micrel® KSZ9021RNI, 10/1000/1000Base-TX
VGA/LCD Controller	Intel® Atom™ SOC	Intel® Atom™ D525 Integrated	Intel® Atom™ SOC	Freescape® i.MX6 Quad 1.0GHz Processor (Automotive) Freescape® i.MX6 Quad 1.0GHz Processor (Commercial) Freescape® i.MX6 Dual Lite 800MHz Processor (Commercial)
Video Output	24-bit LVDS LCD/eDP, HDMI, DDI x 1	CRT Connector, 18-bit LVDS	24-bit LVDS LCD, DP x 1	LVDS x 2 (24-bit x 1)/ LVDS x 1 (24-bit x 2), HDMI 1.4
Audio	I2S x 1, HD Audio x 1	High Definition Audio Interface	High Definition Audio Interface	I2S x 1
USB Port	USB3.0 x 1, SB2.0 x 3 (1 for USB OTG)	USB 2.0 x 8	USB 2.0 x 6, USB3.0 x 1	USB 2.0 x 5 (Shared with USB OTG client x 1)
Serial Port	UART x 2 (1 for TX, RX, RTS#, CTS#, 1 for TX, RX)	—	Tx/Rx x 1	—
Parallel Port	—	—	—	—
Storage	SATA x 1, SD Card x 1, eMMC	—	—	SD Card x 1, SATA x 1, eMMC x 1 (optional)
Expansion Slot	PCI Express [x1] x 3, I2C x 2, SPI x 2, 1 for boot	PCI-Express [x1] x 4, LPC bus x 1, SMBus x 1	PCI Express [x1] x 3, LPC Bus x 1 (shared with GPIO), SMBus x 2	PCI Express [x1] x 1, CAN Bus x 1, I2C x 1, SDIO x 1
Power Requirement	Normal: +5V, 9~36V	+5V DC	+5V DC	+5V DC
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) -40 °F ~ 185 °F (-40 °C ~ 80 °C) by E3825	32 °F ~ 140 °F (0 °C ~ 60 °C)
Dimension (L x W)	3.23" x 1.96" (82 x 50 mm)	3.35" x 2.75" (85mm x 70mm) with SSD	2.75" x 2.75" (70mm x 70mm)	2.75" x 2.75" (70mm x 70mm)

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