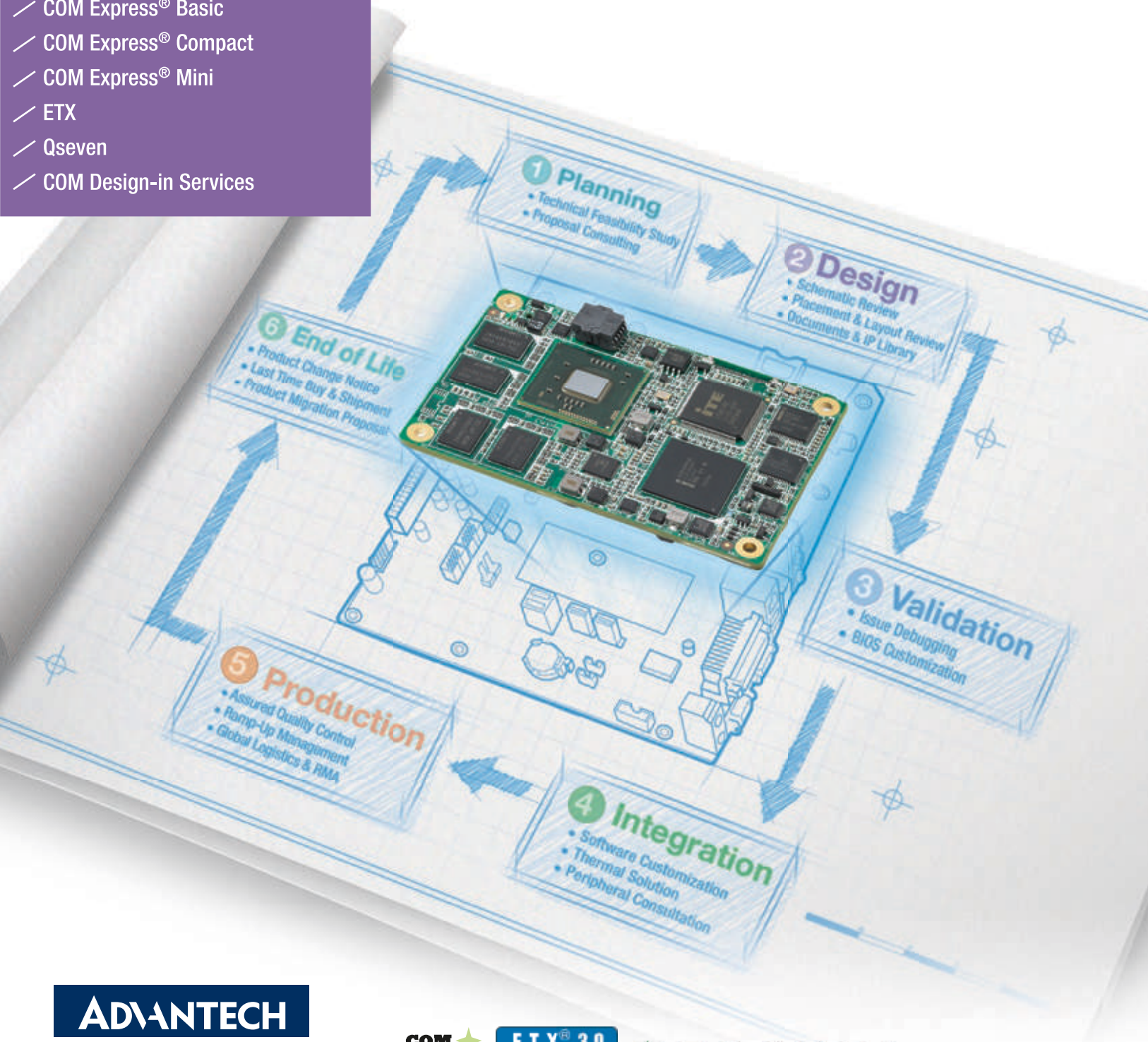
Computer On Modules

Expert-Integrated Design-in Services for Long Term Success

- COM Express® Basic
- COM Express® Compact
- COM Express® Mini
- ETX
- Qseven
- COM Design-in Services



ADVANTECH

Enabling an Intelligent Planet

COM Express · ETX® 3.0 Long Term Support · QSEVEN

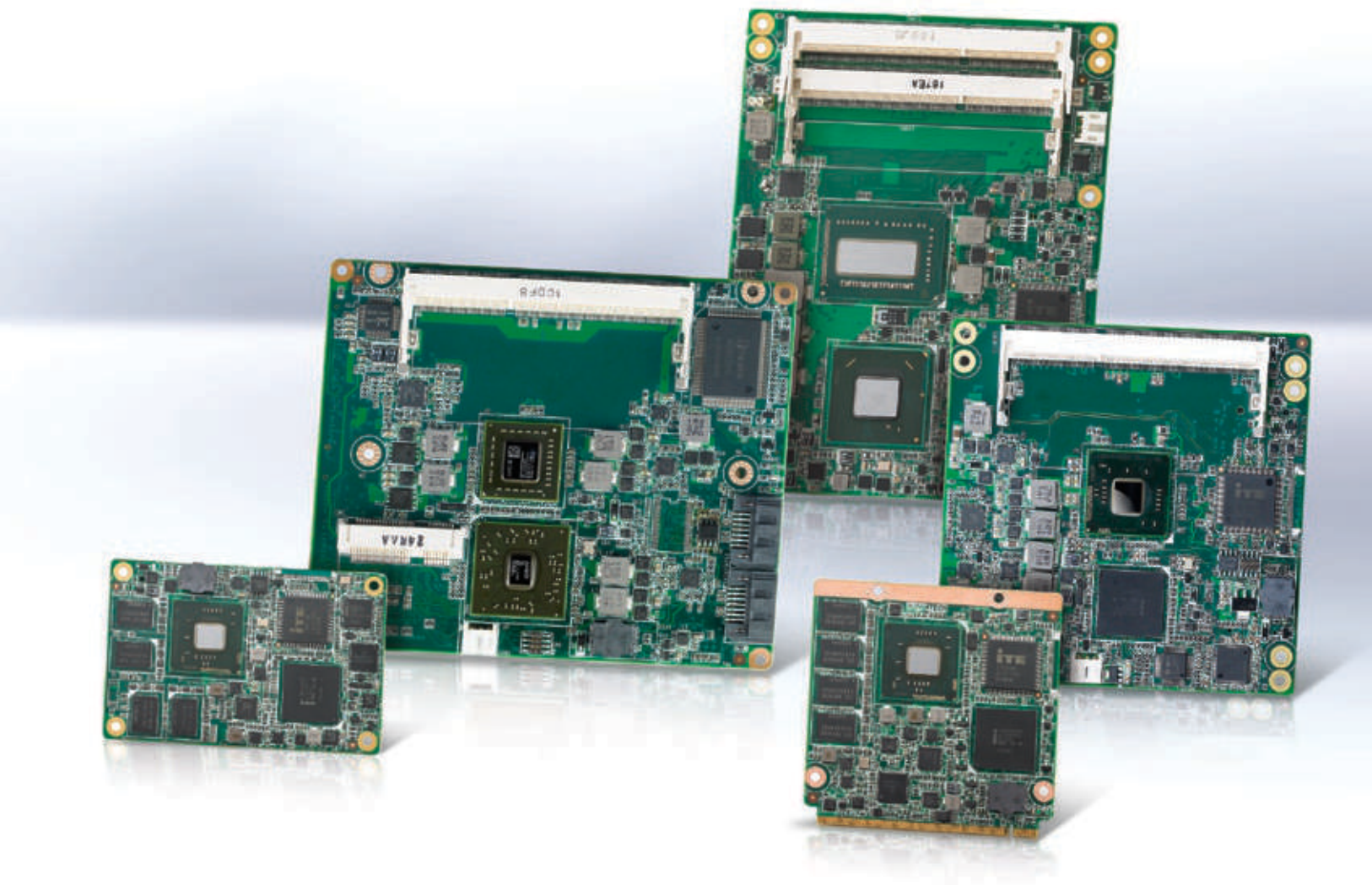
COM.advantech.com

About Advantech and COM

Founded in 1983, Advantech is a leader in providing trusted innovative embedded & automation products and solutions. Advantech offers comprehensive system integration, hardware, software, customer-centric design services, and global logistics support; all backed by industry-leading front and back office e-business solutions. We cooperate closely with our partners to help provide complete solutions for a wide array of applications across a diverse range of industries. Advantech has always been an innovator in the development and manufacturing of high-quality, high-performance computing platforms, and our mission is to empower these innovations by offering trustworthy ePlatform products and services.

As a smart system integrator, knowing how to differentiate applications with faster solutions is the most important point. In a dynamic market, technical specifications keep changing. However, Computer On Modules can help you to reduce the time and work involved with designing new carrier boards. Advantech seamlessly supports you in handling the complexities of technical research at each development stage which greatly minimizes development times. Advantech keeps developing innovative COM Design-in Service and provides scalable reliable Computer On Modules. When we stand by you, you can concentrate on your core competence.

With Advantech, there is no limit to the applications and innovations our products make possible.
For more information, visit: COM.advantech.com



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Computer-On-Module Introduction

Computer-On-Module, or COM, is a highly integrated board with CPU, chipset, memory, and peripherals designed into a component module. COM requires a carrier board to power up and brings out expansion interfaces and I/O for use. Since the COM architecture provides various standard specifications in different form factors and pin-out types, it not only gives OEM customers flexibility to choose a suitable solution for their applications but also saves development time. The COM standard includes COM Express®, ETX and Qseven, providing a wide variety of interfaces like PCI Express, PCI, ISA, SATA, IDE, USB3.0, etc. These standards cover electrical and mechanical compatibilities for easy replacement or upgrade regardless of the mechanical and thermal design. As a result, COM is one of the most popular choices for customers to design their application-specific solutions.

Key Benefits of COM

Time-to-Market:

- Saves time and speeds up product development

Focused Resource Allocation:

- Shortens development time & lowers development cost
- Resources focused on key applications

Easy Migration:

- Modularized thermal solution
- Unified in electrical, mechanical properties and software utilities
- Immediate assistance for carrier board design

Secured Core Knowledge:

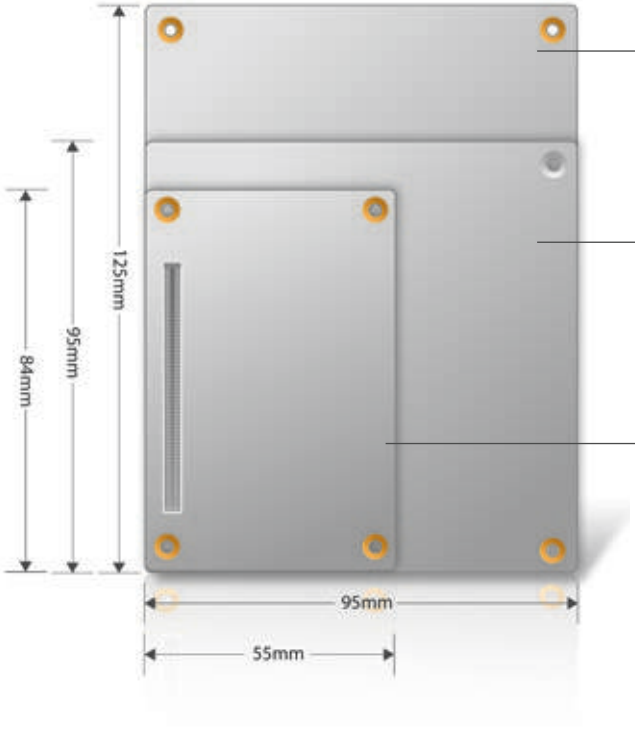
- Customer keeps domain know-how on their own carrier board

COM Express®

COM Express® is becoming the most popular COM specification due to the latest expansion interfaces and I/O, generating various pin-out types and three different form-factors. COM customers benefit from its flexibility and easy learning curve to serve a variety of applications. COM Express® provides not only high-speed interfaces like HDMI/DisplayPort, PCI Express, SATA and USB 3.0 for volume data transportation, but also LVDS, PCI, and IDE for legacy applications. COM Express® defines 3 dimensions: - 125 x 95mm, 95 x 95mm, and 84 x 55mm - suitable for high performance, entry level, and portable applications. It also defines the PCB thickness to 2mm, onboard component height to under 8mm, and a total height from the bottom surface of the PCB module to the standard equipped heat-spreader top surface of 13mm. COM Express® allows a wide-range of input power voltages in a specific form factor which makes it more suitable for mobile, and battery environments.

Form Factor

COM Express® has 3 different form factors:
COM-Basic (125 x 95mm), COM-Compact (95 x 95mm), and COM-Mini (84 x 55mm), appealing to a wide range of vertical markets.



COM Express® Basic

Full feature sets with extreme performance platforms for computing-demanding applications.

COM Express® Compact

Compact form factor for computing capability and applications with balanced energy consumption.

COM Express® Mini

Power optimized design for handheld devices in limited space for harsh environment.

Functionality

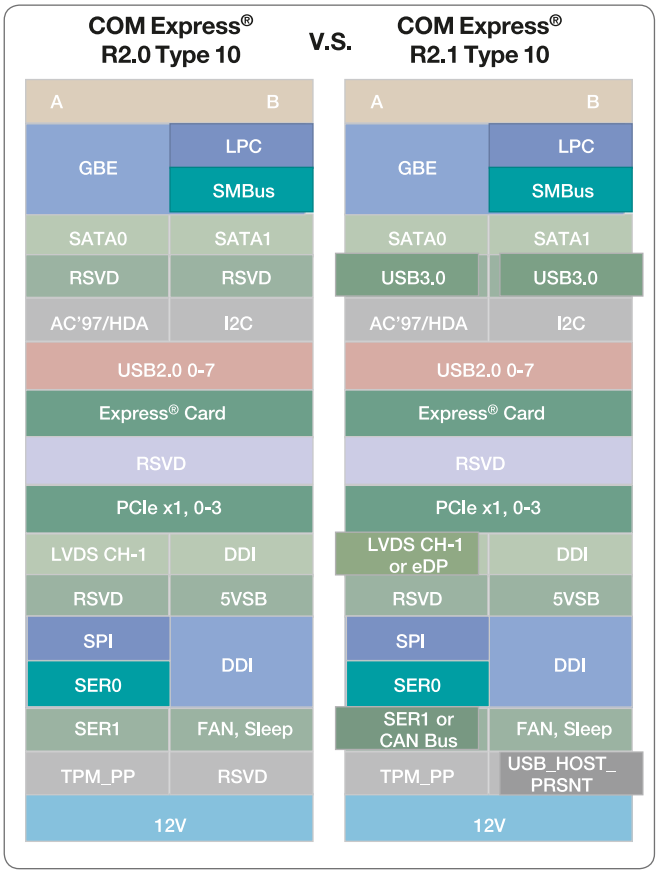
In COM Express® R2.1 standard, there are 4 popular pin-out types providing various features and applying to different customer expansion or I/O requirements.

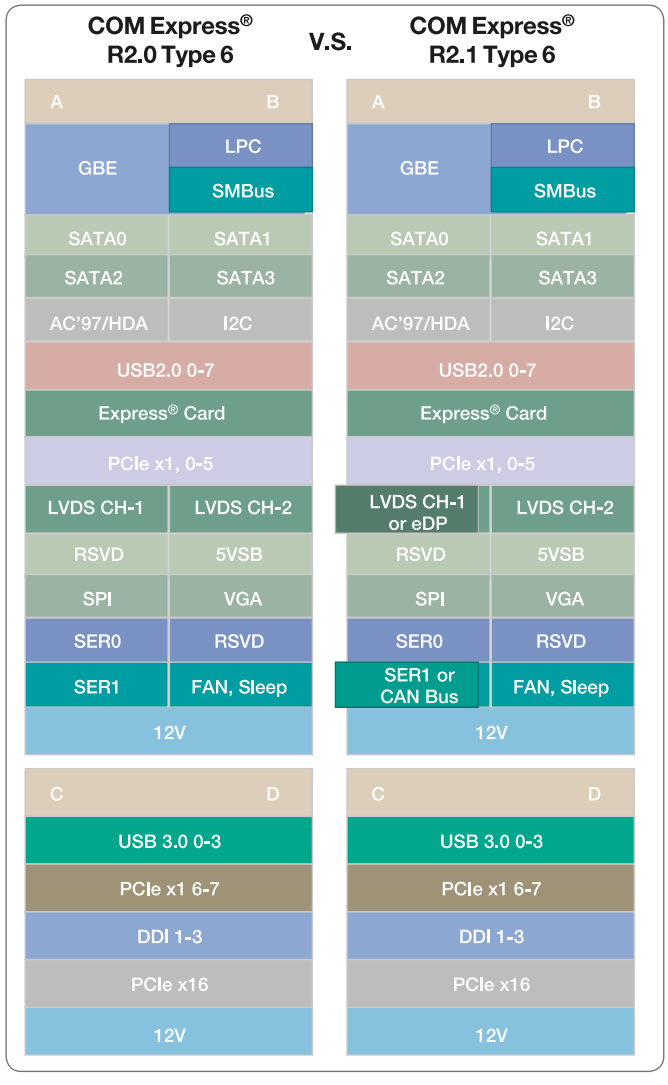
Function / Interface		Type 1	Type 2	Type 6	Type 10
Display Interface	VGA Port	1	1	1	-
	LVDS Channel A	1	1	1	1
	LVDS Channel B	1	1	1	-
	eDP (Muxed LVDS Channel A)	-	-	1	1
	DDI (HDMI/DVI/DP)	-	-	3	1
	SDVO (Muxed PEG Port)	-	2	-	-
Expansion Interface	PCI Express x16 (PEG Port)	-	1	1	-
	PCI Express x1	6	6	8	4
	PCI Bus - 32 Bit	-	1	-	-
	AC'97 / HD Audio I/F	1	1	1	1
	LPC Bus	1	1	1	1
I/O	Gigabit LAN	1	1	1	1
	SATA / SAS Ports	4	4	4	2
	PATA Channel	-	1	-	-
	USB 3.0 Ports	-	-	4	2
	USB 2.0 Ports	8	8	8	8
	USB Client	1	1	1	1
	SDIO	-	-	1	1
	Serial Ports	-	-	2	2
	General Purpose I/O	8	8	8	8
System Management	SPI Bus	2	2	2	2
	SMBus	1	1	1	1
	I2C	1	1	1	1
	Watchdog Trigger Output	1	1	1	1
	Express Card Support	2	2	2	2
	Fan Control/Speed Detection	-	-	2	2
Power	Supply Voltage	12V	12V	12V	4.75 - 20V
Form Factor		All	All	All	All

Computer-On-Module Introduction

COM R2.1 Highlight

☑ Form Factor	Add mini (84 x 55mm) form factor
☑ Power	Allow wide range voltage input from 4.75 to 20V for mini form-factor modules
☑ I/O	Add CAN Bus as an alternative function for serial port for Type 6 and Type 10
	Add USB3.0 for Type 10
	Add USB Client Host Detection pin for Type 10
	Add option for eDP overlayed on LVDS channel A for Type 6 and Type 10





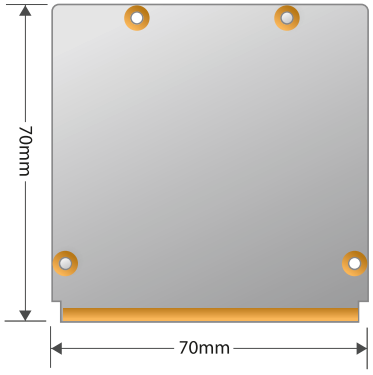
Qseven

Qseven is built with a 70 x 70mm form factor, 1.2mm thickness PCB, 5-volt power input, limited power consumption under 12W, and limited overall height to approximately 9.2mm from the bottom surface of module PCB to top surface of heat-spreader. These mechanical and power specifications make Qseven suitable for small form-factor, mobile or battery target applications. Qseven uses MXM as a board-to-board connector which is easy to get and cost effective, along with proven high speed integration for PCI Express. This small module provides digital display interfaces including LVDS, HDMI/Displayport, expansion interface PCI Express x1, and I/O like Gigabit LAN, SATA, and USB2.0. For size-crucial designs, Qseven provides the necessary functionality to minimize design effort for limited spaces.

Functionality

Function / Interface		Maximum Configuration
Display I/F	LVDS	Dual Channel, 24-bit
	HDMI/Displayport/DVI	1
Expansion I/F	PCI Express x1	4
	HD Audio / AC'97	1
	LPC	1
I/O	Gigabit Ethernet	1
	SATA	2
	USB2.0	8
	SDIO	8-bit
System Management	SPI Bus	1
	SMBus	1
	I2C Bus	1
	CAN Bus	1
	Watchdog Trigger Output	1
	FAN Control	1

Form Factor



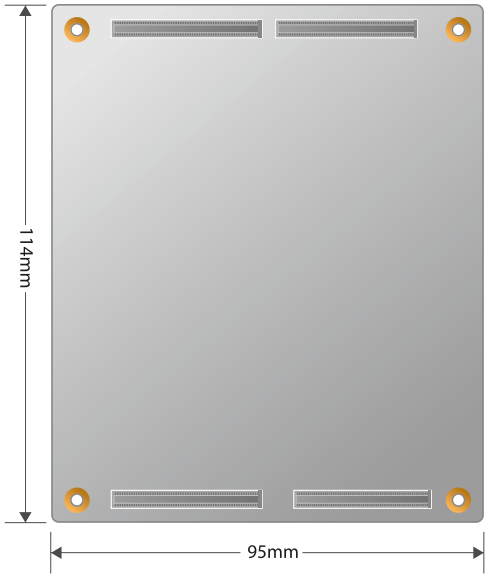
ETX

ETX is widely used in many industrial markets like automation, medical, networking, and communications. It has a compact size of 114 x 95mm which makes it easy for customers to integrate, and provides legacy interfaces such as PCI, ISA, IDE, TTL/LVDS and LCD for vertical application continuity. ETX board-to-board connectivity is robust enough for ruggedized conditions and only requires 5V input voltage for easy system design. These features make ETX a widely adopted platform in many crucial, legacy interface type of applications.

Functionality

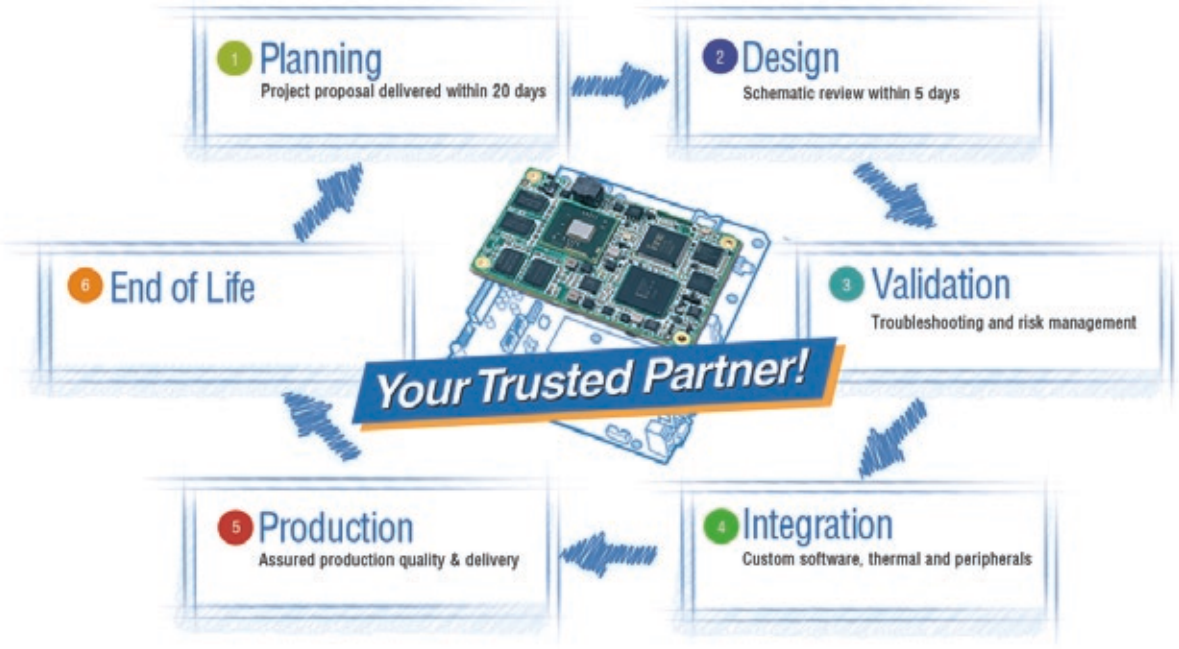
Connector Location	Interfaces	Description
X1	PCI	32-bit 4 Masters
	USB2.0	4 Ports
	Audio	Line-in, Line-out, MIC
X2	ISA	16-bit data width, 16-bit I/O address
X3	VGA	R, G, B
	TTL/LVDS	TTL: 18-bit, LVDS: 2 channel 24-bit
	TV-out	CVBS or S-Video
	Serial Port	RS-232, RS-422, or RS-485 depends on carrier board design
	PS/2	Keyboard, Mouse
	IRDA	
	LPT/FDD	Multi-function pin selected in BIOS or boot up strapping
X4	IDE	2 Channel, up to 4 devices
	LAN	10/100 Mbps
	SMBus	
	I2C Bus	
	GPE/GPIO	2-bit
	WDTOUT	Watchdog trigger output
Onboard	SATA	2 Ports

Form Factor

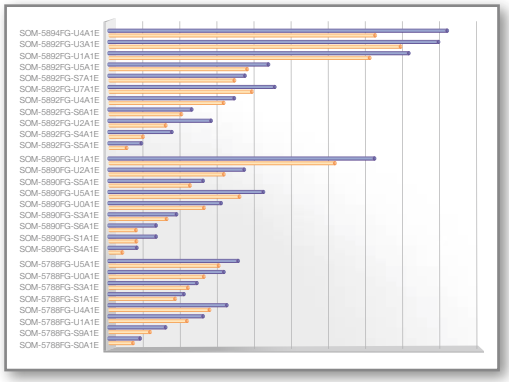


COM Design-in Service2.0

Advantech COM Design-in Services covers all your questions from the design-in process and volume production, to product lifecycle management. We act as your in-house engineer as well as your personal consultant. Customers benefit from easy selection of modules, accessories and software, all backed up by our expert-integrated team. We transform complex COM development into easy tasks so our customers can better meet new market challenges. COM Design-in Service 1.0 is focused on timely response to customers' issues. Now the new Service 2.0 offers proactive services with pre-valid technology to ensure project success and time-to-market.



Phase 1: Planning | Deliver project proposal



Performance-Sandra 2009 CPU Benchmark

Consulting Services

During our clients planning phase, Advantech's COM expert-integrated team provides various hardware and software suggestions for potential issues that our clients might face, such as technical specifications and schedules.

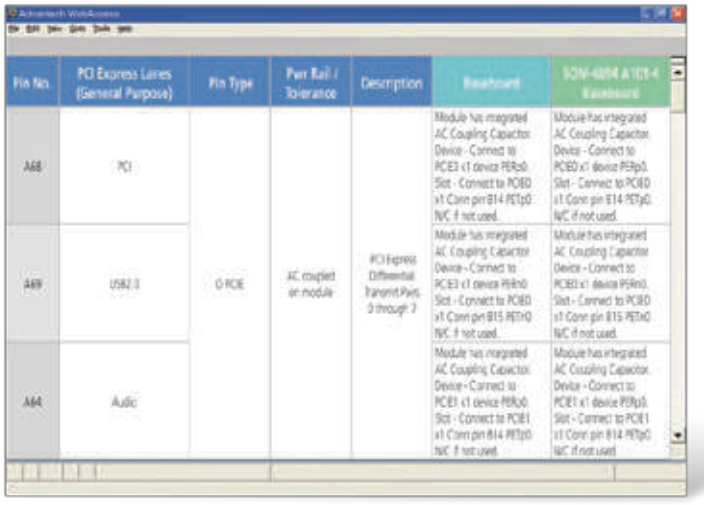
- Technical feasibility study
- Off-the-shelf or customized product selection
- Hardware & software proposal
- Performance & power consumption comparison
- Product selection guide
- Evaluation board

Phase 2: Design | Schematic Review

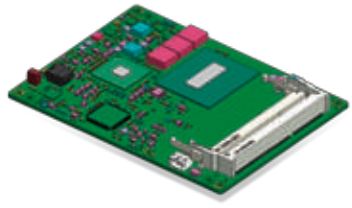
Design Documents

Advantech is able to provide plenty of product related information and service for designing carrier boards such as design check List and mechanical drawing. For details please visit the "Download" page of the COM design support website at **Http://com.advantech.com.**

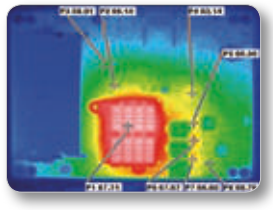
- Schematic & layout checklist
- 2D/3D mechanical model
- User's manual
- Thermal simulation
- Application note



Schematic Checklist



3D Board Model



Thermal Simulation

IP Library

Advantech provides our clients with a hardware design library for choosing features such as dual LVDS, TV-out solutions, second Super I/O, and smart battery. Our client reference library makes it simple to implement features on carrier boards, saving overall design and verification efforts.

Function/Application Domains	Transport	Military	Medical	Industrial Automation	Instrument
CAN Bus	✓			✓	
USB Client/SD Card			✓		✓
Power Converter	✓	✓	✓	✓	✓
AT-to-ATX	✓	✓			
Smart Battery			✓		✓
EMI Guarding GND		✓			✓
OS Recovery	✓				✓
Quick Erase		✓			
WINDOWS EWF	✓			✓	
mPCIe with 3G					✓
mSATA	✓	✓	✓	✓	✓
Specific Panel Type		✓	✓		✓

IP Library for SOM-7567 & SOM-AB5510

iManager

iManager provides a hardware - based and OS independent method to control features like watchdog, hardware monitor, smart fan, and other useful functions. It doesn't consume any processor resource and work properly no matter OS or system status is. Advantech also provides API under different OS to set and control these features. Users don't need to change their software developed based on these APIs while their model changes.

Review Service

Schematic Check

Advantech design assistance is a review service based on our clients' carrier board schematic for COM module functions. This service helps to catch design errors before they happen.

Review Items:

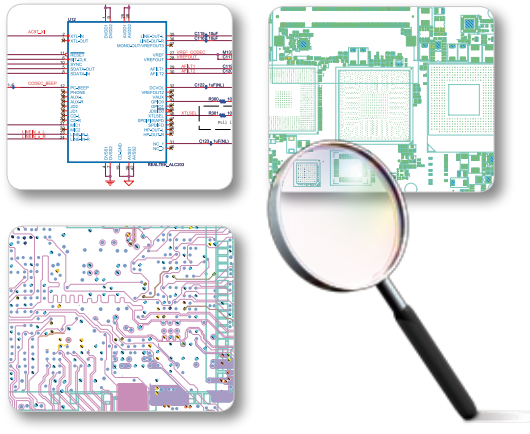
- Expansion: PCI Express, PCI, ISA, LPC
- I/O: USB3.0/2.0, COM, PS/2 and LPT
- Display: LVDS/TTL, HDMI/DVI/Displayport, TV-out
- Storage: SATA, IDE
- Others: Power, PCS (Power Control Signals), PMS (Power Management Signals), and MISC (Miscellaneous Signals)

Placement/Layout Check

After the schematic review, Advantech provides a placement & layout review on our clients' carrier boards, with respect to COM module related functions. These reviews provide suggestions for improving signal quality and anticipate possible mechanical conflicts.

Review Items:

- Trace length
- Trace width
- Ground pad
- Mechanical conflict



Phase 3: Validation | Troubleshooting and risk management

Debugging, Verification and Feasible Solution

Advantech strives to deal with customer's carrier board design issue even we cannot be there. We not only have a dedicated FAE and engineering team to help customers debugging, but also provide a sequential debugging SOP and various debug cards for customer to implement self analysis.

Dedicated FAE & engineering team

- Phenomenon duplication
- Analysis and verification
- Solutions and suggestions

Customer self-analysis/debugging tools

- Sequential debugging SOP
- Debug card

Debug Card

BIOS Customization

Advantech is able to provide COM module BIOS customization initializing IC on carrier boards and other special function customization on carrier boards - for example: quick bootup, bootup logo, additional COM ports, option ROM, boot sequence, smart battery charger, console redirection.

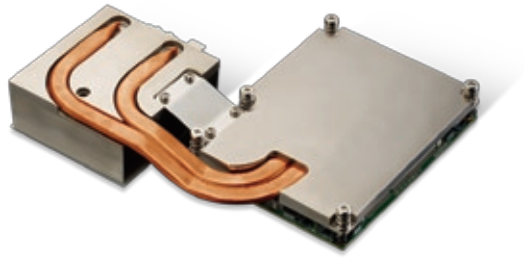
Phase 4: Integration | Custom software, thermal and peripherals

Customized Thermal Solution

The customized thermal solution service is available upon request to meet different application requirements. Advantech provides a custom-designed heat-sink or cooler solution based on the modularized thermal solution concept which is quick and cost effective. For special cases like extra high-temperature demands or ultra-slim chassis, technologies like spring screws, heat-pipe give an alternative way to help customers build amazing products.

The service includes:

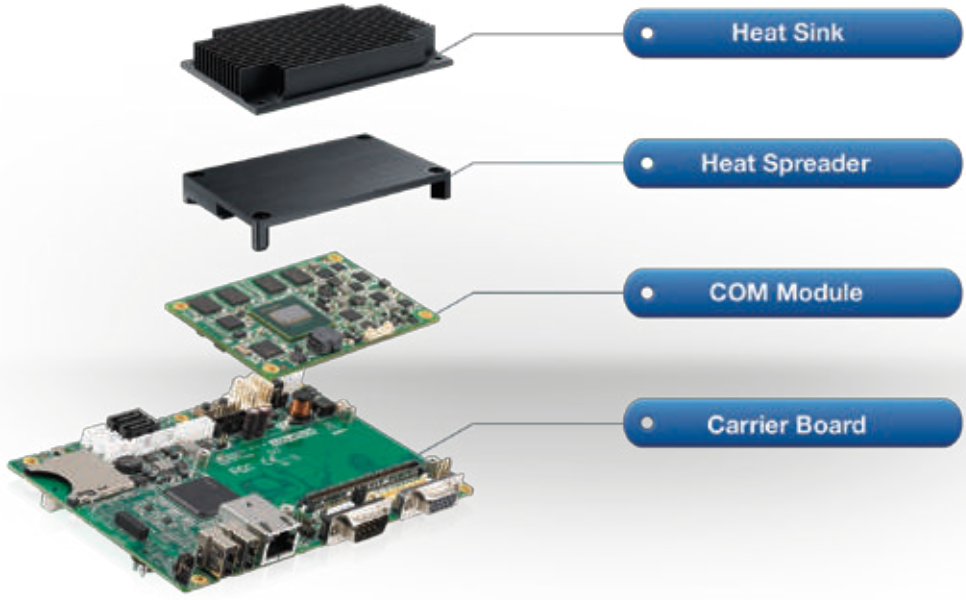
- System-based thermal consulting
- Mock-up sample
- Production



Spring Screw & Heat Pipe Thermal Solution

Wide Temperature Design for Extreme Environments

Customer applications that operate under harsh environments require a high reliability system design to sustain normal function. Particularly in the military, industrial automation, transportation or medical industries, systems are too often exposed to extreme conditions; extreme temperatures, humidity, dust, etc., that may hamper bottom-line business success. With that in mind, Advantech provides wide temperature solutions with a range of -20°C to +80°C and -40°C to +85°C for highly-demanding industrial applications. The wide temperature solution can be used by all the Advantech COM products.



Peripheral Offering

Embedded module service provides more innovative solutions for customers by combining Advantech's unique embedded software solutions with cutting-edge peripheral modules.

- **Memory modules:** offering DRAM modules from consumer grade to industrial grade supporting -20~80°C or -40~85°C.
- **NAND Flash storage modules:** CF/CFast, SATA/PATA SSD & DOM with 1GB~1TB capacities, SLC or MLC structures, and extended temperature support.
- **Wireless modules:** WLAN, Cellular, Bluetooth and combo modules which support longevity.
- **Industrial displays:** Industrial grade LCD panels and monitors with 5.7"~55" sized and special customizations.

Intelligent Displays Embedded Modules

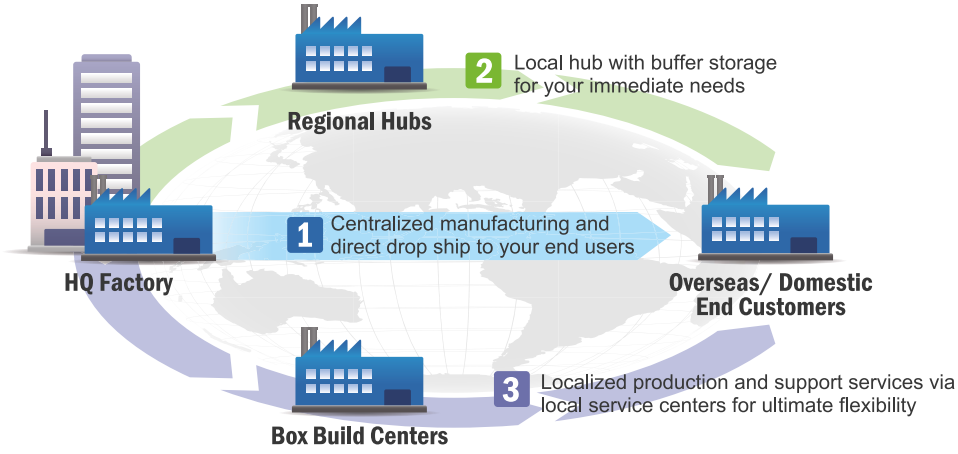
Utility Customization

Advantech provides a series of ready to use utilities such as watchdog timer, hardware monitor and digital I/O, under Windows 7 and WES7, which helps customers to link features to their application more easily. Besides the standard utilities, a customized utility is also available when our clients require it.

Phase 5: Production | Assured production quality & delivery

From initial design concept to final production, Advantech helps our customers take full control of quality management. In the first stage, our "Design Quality Assurance" process ensures New Product Introduction (NPI) is fully understood and executed by our project team before moving to the next stage.The second stage involves Advantech's core competence of product mass production. The final stage "Customer Quality Control" guarantees production satisfaction after delivery.

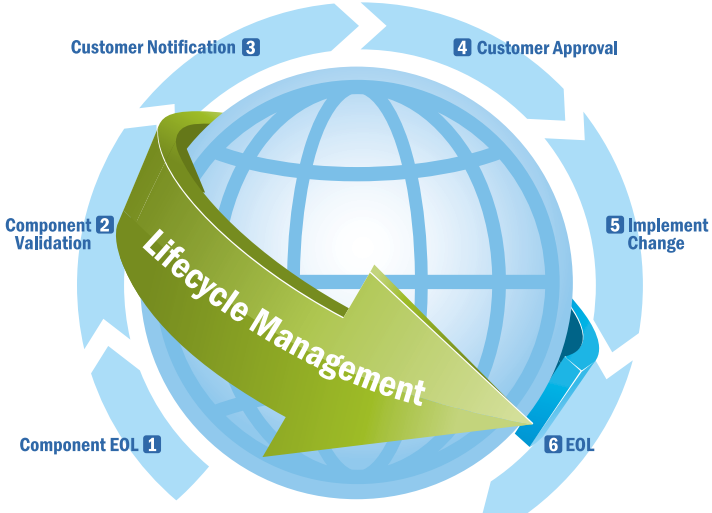
"Time to value" weighs in our customers' requirements. As an international company with global presence, Advantech offers direct shipment from our manufacturing factories to our customers' designated location. As a trusted consultant and partner, Advantech's global customer care services help save our customers' time and money.



Phase 6: EOL & Migration

The market is ever changing, making today's innovative product obsolete over time. Advantech's experienced consulting team is able to give market insights to help our customers make the right decision. When a product comes into the End-Of-Life (EOL) stage, we offer the following services:

- Product change notice
- Last-time buy & last shipment
- Product migration proposal



Migration

Migrate to Advantech state-of-the-art COM products

Intelligent Self-Management - iManager

To fulfill the ever-changing specialized demands of industrial applications, Advantech designed an intelligent self-management tool with software control functions implemented in hardware. iManager is a built-in chip solution that provides a standardized API, integrating several unique platform consolidating functions needed by embedded system integrators to help improve consistency, lighten the development effort and speed-up a product's time-to-market.

Key Benefits

Enhance System Reliability

- Automatic multi-stage protection
- Smart self hardware control
- Real-time monitoring and reaction

Manage Onboard Devices

- Record platform status history
- Secure user data storage
- Simplified I/O access

OS-Independent

Cross-Platform Programming

Operates independent of any OS. iManager 2.0 runs automatically without dependency on any operating system; it increases stability for managing platform resources.

Real-Time Response

Instant reaction for real-time status monitoring. iManager 2.0 source code is a built-in, onboard embedded controller, providing faster response time for processing hardware control and interrupts.

Plug & Play

Power on and run without any driver installation. iManager 2.0 works well without any software installed, easing the deployment process for developers.

Self-Management

Intelligent Resource Management

Auto adjusting fan speed based on temperature, and multi-control interfaces for peripheral devices. System health inspection includes real-time monitoring of fan speed, temperature sensors and voltages etc.

Auto-protection & System Restore

Multi-level protection quickly puts failover systems back in service. CPU Throttling feature automatically reduces clock frequency to lower temperature, preventing the CPU from physical damage and preventing data processing errors.

Security Enhancement

Records boot information and encrypted data protection for security enhancement.

iManager Function Set

Advanced Watchdog

- Multi-level
- Programmable

Unified S/W API/ Utility

- Smart Fan
- Smart battery

Brightness Control

- Control LCD brightness

Hardware Monitoring

- Voltage
- Temperature
- Fan speed

Data Security Area

- 64 Bytes for customer data
- 8 Byte key

Board Information

- Boot record
- Running hours
- Board data

Power Saving

- Deep sleep

Multi-control Interface

- I2C
- GPIO
- SMBus

Remote Device Management - SUSIAccess

SUSIAccess for Remote Device Management

SUSIAccess is a value-added intelligent management agent which transforms traditional embedded systems into intelligent systems, helping shape new business models and opportunities in COM development. Key benefits of SUSIAccess consists of efficient remote monitoring, quick recovery & backup, and real-time remote configuration.

Key Benefits

Active Control

- Intel® Active Management Technology (AMT) New
- Scheduled On/Off
- Remote KVM

Complete Protection

- System Protection
- System Recovery
- Standalone Management New

Powered by Acronis McAfee

Remote Monitoring

- System Monitoring
- Alerts via SMS Gateway New
- Event Logging New

Multi-Platform Support

- Windows System
- Linux System New

System Monitoring

Device Monitoring
Inspects the condition of embedded devices, such as device temperature, internet connection, CPU temperature, fan speed and voltage.

System Security

System Recovery
Protects data and devices with a timely backup and recovery application (Powered by Acronis True Image).

- Hot Backup: Live backup of your system withoutrebooting the machine
- Scheduled Backup: Schedule system backups on a regular basis
- One-Click Recovery: Restore OS image with 1-click

Remote Control

Remote KVM
Quick access to remotely located, embedded devices for device diagnostics and repair, without the need for IP address, account and password information, significantly reducing the time required for maintenance.

Automatic Alerts by Email/SMS
Sends alarms automatically so that administrators can get prompt notifications sent to their email inbox or cell phone.

System Protection
Helps system administrators ensure all remote devices are protected from cyber threats and attacks, enabling administrators to take actions promptly(Powered by McAfee Embedded Security solutions).

- White List Protection: Control what software is installed and run
- Warning for any unauthorized activities: Auto-notify administrators by eMail or SMS

Remote On/Off
Sets the power on /off schedule for remotely located, embedded devices in order to save power.

Product Selection

NEW NEW





Model Name		SOM-5894	SOM-5893	SOM-5892	SOM-9890	SOM-5890
Form Factor		COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic	COM Express Basic
Pin-out Type		COM R2.1 Type 6	COM R2.1 Type6	COM R2.0 Type 6	COM R2.0 Type 6	COM R2.0 Type 6
Processor System	CPU	4th Gen. Intel Core i7/i5/i3/Celeron	AMD R-Series Bald Eagle	3rd Gen. Intel Core i7/i5/i3/Celeron	3rd Gen. Intel Core i7/i5/i3/Celeron	2nd Gen. Intel Core i7/i5/i3/Celeron
	Base Frequency	2.7-1.5GHz	2.7 - 2.2GHz	2.7-1.4GHz	2.7-2.2GHz	2.5 - 1.4GHz
	Processor Core	4/2	4/2	4/2/1	4/2	4/2/1
	LLC	6/3/2MB	4/2MB	6/4/3/2/1MB	6/3/2MB	6/4/3/2/1.5MB
	CPU TDP	47/37/25W	35W/17W	45/35/25/17W	45/35W	45/35/25/17W
	Chipset	Intel QM87	A77E	Intel QM77	Intel QM77	Intel QM67
Memory	Technology	DDR3L 1600/1333	DDR3L 1600	DDR3/DDR3L 1600/1333	DDR3/DDR3L 1600/1333	DDR3 1333/1066
	ECC Support	B1 version only	-	B1 version only	-	B1 version only
	Max. Capacity	16GB	16GB	16GB	16GB	16GB
	Socket	2 x 204P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM
Graphics	Controller	Intel HD Graphics	AMD Radeon HD9000	Intel HD Graphic	Intel HD Graphic	Intel HD Graphic
	Max. Frequency	1GHz - 900MHz	1GHz - 900MHz	1GHz - 900MHz	1GHz - 900MHz	1.1GHz - 800MHz
	VGA	1	1	1	1	1
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18-bit/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit
	DDI (HDMI/DVI/ DisplayPort)	3	4	3	3	3
	SDVO	-	-	1	1	1
	TV-out	-	-	-	-	-
	Multiple Displays	Dual/Triple	Dual/Triple/Quad	Dual/Triple	Dual/Triple	Dual
Expansion	PCIe x16	1	1	1	1	1
	PCIe x1	7	7	7	7	7
	PCI Masters	-	-	-	-	-
	ISA Bus	-	-	-	-	-
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I²C Bus	1	1	1	1	1
	CAN Bus	-	-	-	-	-
Ethernet	Controller	Intel i217LM	Intel i211AT	Intel 82579LM	Intel 82579LM	Intel 82579LM
	Speed	10/100/1000Mbps	10/100/1000 Mbps	10/100/1000Mbps	10/100/1000Mbps	10/100/1000Mbps
I/O	SATA	4	4	4	4	4
	PATA Channel	-	-	-	-	-
	USB3.0	4	4	4	4	-
	USB2.0	8	8	8	8	8
	Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	-	-	-	-
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)	2 (2-wire)
	LPT/FDD	-	-	-	-	-
	PS/2	-	-	-	-	-
	IR	-	-	-	-	-
	Onboard Storage	-	-	-	-	-
	TPM	Optional	Optional	Optional	Optional	-
Power	Power Type	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
	Supply Voltage	Vin: 8.5-20V, VSB: 4.75-5.25V	Vin: 8.5-20V VSB: 4.75-5.25V	Vin: 11.4-12.6V, VSB: 4.75-5.25V	Vin: 11.4-12.6V, VSB: 4.75-5.25V	Vin:8.5-20V, VSB: 4.75-5.25V
	Power Consumption Max.	41.8 Watt	TBD	41.8 Watt	41.8 Watt	42.8 Watt
	Power Consumption Idle	8.5 Watt	TBD	5.4 Watt	4.7 Watt	9.6 Watt
Environment	Operating Temp.	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)
	Extended Temp. (Optional)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-	-40 ~ 85° C (-40 ~ 185° F)
Mechanical	Dimensions	125 x 95mm (4.92" x 3.74")	125 x 95 mm (4.92'' x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")





SOM-5790	SOM-5788	SOM-4466	SOM-4455	SOM-4463
COM Express Basic	COM Express Basic	ETX	ETX	ETX
COM R2.0 Type 2	COM R1.0 Type 2	ETX 3.0	ETX 3.0	ETX 3.0
2nd Gen. Intel Core i7/i5/i3/Celeron	Intel Core i7/i5/i3/Celeron	AMD G-Series T16R	AMD LX800	Intel Atom D525/N455
2.5 - 1.4GHz	2.53 - 1.06GHz	615MHz	500MHz	1.8/1.66GHz
4/2/1	2/1	1	1	2/1
6/4/3/2/1.5MB	4/3/2MB	512KB	128KB	1MB/512KB
45/35/25/17W	35/25/18W	4.5W	3.6W	13/6.5W
Intel QM67	Intel QM57	AMD A55E	AMD CS5536	Intel ICH8M
DDR3 1333/1066	DDR3 1333/1066/800	DDR3 1066	DDR 400/333	DDR3 800/667
-	B1 version only	-	-	-
16GB	8GB	4GB	1GB	4GB/2GB
2 x 204P SODIMM	2 x 204P SODIMM	1 x 204P SODIMM	1 x 200P SODIMM	1 x 204P SODIMM
Intel HD Graphic	Intel HD Graphic	AMD Radeon HD6250	AMD LX800	Intel GMA3150
1.1GHz - 800MHz	766 - 500MHz	276MHz	-	400/200MHz
1	1	1	1	1
LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 1-CH 18/24-bit TTL 1-CH 18-bit	LVDS 1-CH 18/24-bit TTL 1-CH 18-bit	LVDS 1-CH 18-bit/24-bit
-	2	-	-	-
1	-	-	-	-
-	Optional	-	-	-
Dual	Dual	Dual	Dual	Dual
-	-	-	-	-
5	6	-	-	-
4	4	4	4	4
-	-	1	1	1
1	1	-	-	-
1	1	1	1	1
1	1	1	1	1
-	-	-	-	-
Intel 82579LM	Intel 82577LM	Realtek RTL8105E	Realtek RTL8100CL	Realtek RTL8103EL
10/100/1000Mbps	10/100/1000Mbps	10/100 Mbps	10/100Mbps	10/100 Mbps
4	4	2	2	2
1	1	2	2	2
-	-	-	-	-
8	8	4	4	4
HD Audio	HD Audio	Line-in/Line-out/MIC	Line-in/Line-out/MIC	Line-in/Line-out/MIC
1	-	-	-	-
8	8	1	1	1
-	-	-	-	-
1	1	1	1	1
-	-	2	2	2
-	-	1	1	1
-	-	KB/MS	KB/MS	KB/MS
-	-	1	1	-
-	-	mSATA socket	CF socket	-
-	-	-	-	-
ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
Vin: 11.4-12.6V, VSB: 4.75-5.25V	Vin: 11.4-12.6V, VSB: 4.75-5.25V	Vin: 4.75-5.25V, VSB: 4.75-5.25V	Vin: 4.75-5.25V, VSB: 4.75-5.25V	Vin: 4.75-5.25V, VSB: 4.75-5.25V
40.1 Watt	42.7 Watt	7.75 Watt.	10.05 Watt.	13.6 Watt
11.4 Watt	7.9 Watt	6.1 Watt.	9.0 Watt.	10.9 Watt
0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)
-	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-20~80° C (-4~176° F)	-40 ~ 85° C (-40 ~ 185° F)
125 x 95mm (4.92" x 3.74")	125 x 95mm (4.92" x 3.74")	114 x 95 mm (3.74" x 4.5")	114 x 95 mm (3.74" x 4.5")	114 x 95mm (3.74" x 4.5")

Product Selection



Model Name		SOM-6896	SOM-6894	SOM-6867	SOM-6765	SOM-6763
Form Factor		COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact	COM Express Compact
Pin-out Type		COM R2.1 Type 6	COM R2.1 Type 6	COM R2.1 Type 6	COM R2.0 Type 2	COM R1.0 Type 2
Processor System	CPU	5th Gen. Intel Core i7/i5/i3/ Celeron U	4th Gen. Intel Core i7/i5/i3/ Celeron (U-Processor Line)	Intel Atom E3800 & Celeron J1900	Intel Atom D2550/ N2600/N2800	Intel Atom D525/N455
	Base Frequency	2.2GHz / 1.8GHz / 2.1GHz / 1.7GHz	1.9 - 1.6GHz	1.91/ 2.0GHz	1.86 - 1.6GHz	1.8-1.66GHz
	Processor Core	2	2	4	2	2/1
	LLC	TBD	4/3/2MB	2MB	1MB	1MB/512KB
	CPU TDP	15W	15W	10W	10/6.5/3.5W	13/6.5W
	Chipset	Integrated in SOC	Integrated in SOC	-	Intel NM10	Intel ICH8M
Memory	Technology	DDR3L 1600 MHz	DDR3L 1600/1333	DDR3L 1333	DDR3 1066/800	DDR3 800/667
	ECC Support	-	-	-	-	-
	Max. Capacity	16GB	16GB	8GB	4GB/2GB	4GB/2GB
	Socket	2 x 204P SODIMM	2 x 204P SODIMM	2 x 204P SODIMM	1 x 204P SODIMM	1 x 204P SODIMM
Graphics	Controller	Intel HD Graphic	Intel HD Graphic	Intel HD Graphic	Intel GMA3650/3600	Intel GMA3150
	Max. Frequency	1 - 0.9 GHz	1.1 - 1GHz	688MHz	640 - 400MHz	400/200MHz
	VGA	1	1	1	1	1
	LCD (TTL/LVDS/eDP)	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	LVDS 2-CH 18/24-bit	D Series: LVDS 1-CH 18/24-bit N Series: LVDS 1-CH 18-bit	LVDS 1-CH 18/24-bit
	DDI (HDMI/DVI/ DisplayPort)	2 (Optional DDI2)	2 (Optional DDI2)	2	2	-
	SDVO	-	-	-	-	-
	TV-out	-	-	-		
	Multiple Displays	Dual	Dual/Triple	Dual	Dual	Dual
Expansion	PCIe x1	4 (Optional PCIe x4)	4 (Optional PCIe x4)	3	2 (Optional 4)	5
	PCI Masters	-	-	-	4	4
	ISA Bus	-	-	-	-	-
	LPC	1	1	1	1	1
Serial Bus	SMBus	1	1	1	1	1
	I²C Bus	1	1	1	1	1
	CAN Bus	-	-	1	-	-
Ethernet	Controller	Intel i218LM	Intel i218LM	Intel i210	Intel 82583V	Intel 82567V
	Speed	10/100/1000Mbps	10/100/1000Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
I/O	SATA	4	4	2	2	3
	PATA Channel	-	-	-	1	1
	USB3.0	2	2	1	-	-
	USB2.0	8	8	8	8	8
	Audio	HD Audio	HD Audio	HD Audio	HD Audio	HD Audio
	SPI Bus	1	1	1	1	1
	GPIO	8	8	8	8	8
	SDIO (GPIO pin shared)	-	-	-	-	-
	Watchdog	1	1	1	1	1
	COM Port	2 (2-wire)	2 (2-wire)	2 (2-wire)	-	-
	LPT/FDD	-	-	-	-	-
	PS/2	-	-	-	-	-
	IR	-	-	-	-	-
	Onboard Storage	-	-	SLC/MLC SSD (optional)	-	-
	TPM	1 (optional)	-	-	-	-
Power	Power Type	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
	Supply Voltage	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 4.75-20V, VSB: 4.75-5.25V	Vin: 4.75-20V VSB: 4.75-5.25V	Vin: 11.4-12.6V, VSB: 4.75-5.25V	Vin: 11.4-12.6V, VSB: 4.75-5.25V
	Power Consumption Max.	TBD	20.6W	TBD	10.3 W	16.1 Watt
	Power Consumption Idle	TBD	4.4W	TBD	7.06 W	13.2 Watt
Environment	Operating Temp.	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)
	Extended Temp. (Optional)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)
Mechanical	Dimensions	95 x 95 mm (3.74'' x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74'' x 3.74")	95 x 95 mm (3.74" x 3.74")	95 x 95 mm (3.74" x 3.74")

NEW




SOM-7567	SOM-7565	SOM-7562	SOM-3565
COM Express Mini	COM Express Mini	COM Express® Mini	Qseven
COM R2.1 Type 10	COM R2.1 Type 10	COM R1.0 Type 1	Qseven R1.2
Intel Atom E3845/E3825/E3815 Intel Celeron J1900/N2930	Intel Atom N2800/N2600	Intel Atom N455	Intel Atom N2600
2 - 1.33 GHz	1.86 - 1.6 GHz	1.66GHz	1.6GHz
4/2/1	2	1	2
2/1/0.5MB	1MB	512KB	1MB
10/7.5/6/5W	6.5/3.5W	6.5W	3.5W
-	Intel NM10	Intel ICH8M	Intel NM10
DDR3L 1333/1066	DDR3 1066/800	DDR3 667	DDR3 800
-	-	-	-
4GB	4GB/2GB	1GB	2GB
Onboard	Onboard	Onboard	Onboard
Intel HD Graphics	Intel GMA3650/3600	Intel GMA3150	Intel GMA3600
854 - 400MHz	640 - 400MHz	200MHz	400MHz
-	-	1	-
LVDS 1-CH 18/24-bit	LVDS 1-CH 18-bit	LVDS 1-CH 18-bit	LVDS 1-CH 18-bit
1	1	-	1
-	-	-	-
-	-	-	-
Dual	Dual	Dual	Dual
3 (Optional 4)	3 (Optional 4)	5	3 (Optional 4)
-	-	-	-
-	-	-	-
1	1	1	1
1	1	1	1
1	1	1	1
Optional	-	-	-
Intel i210E	Intel 82574L	Intel 82567V	Intel 82574L
10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
1 (Optional 2)	1 (Optional 2)	3	Up to 2
-	-	1	-
1	-	-	-
4	8	8	8
HD Audio	HD Audio	HD Audio	HD Audio
1	1	-	1
8	8	8	8
-	-	-	-
1	1	1	1
2 (2-wire)	2 (2-wire)	-	1 (2-wire)
-	-	-	-
-	-	-	-
-	-	-	-
SLC/MLC SSD (optional)	SLC/MLC SSD (optional)	SLC/MLC SSD (optional)	SLC/MLC SSD (optional)
-	-	-	-
ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin	ATX: Vin, VSB, AT: Vin
Vin: 4.75-20V, VSB: 4.75-5.25V	Vin: 4.75-20V, VSB: 4.75-5.25V	Vin: 11.4-12.6V, VSB: 4.75-5.25V	Vin: 4.75-5.25V, VSB: 4.75-5.25V
TBD	8.64 Watt.	10.5 Watt	7.8 Watt.
TBD	6.96 Watt.	8.1 Watt	4.9 Watt.
0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)
-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)	-40 ~ 85° C (-40 ~ 185° F)
84 x 55 mm (3.3" x 2.17")	84 x 55mm (3.3" x 2.17")	84 x 55mm (3.3” x 2.17”)	70 x 70mm (2.75" x 2.75")

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