

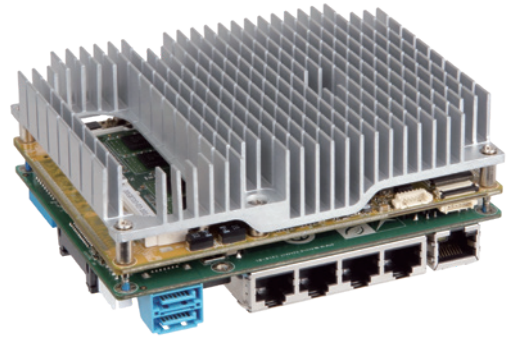
# IEI Computer on Modules

A computer-on-module (COM) is a type of single-board computer (SBC), a subtype of an embedded computer system. An extension of the concept of system on chip (SoC) and system in package (SiP), COM lies between a full-up computer and a microcontroller in nature.

## Design

Computer-on-modules are complete embedded computers built on a single circuit board. The design is centered on a CPU or a microprocessor with RAM, input/output controllers and all other features needed to be a functional computer on the one board. However, unlike a single-board computer, the Computer-on-module will usually lack the standard connectors for any input/output peripherals to be attached directly to the board. The module will usually need to be mounted on a carrier board (or baseboard) which breaks the bus out to standard peripheral connectors. Some Computer-on-modules also include peripheral connectors and/or can be used without a carrier.

A Computer-on-module solution offers a dense package computer system for use in small or specialized applications requiring low power consumption or small physical size as is needed in embedded systems.



## Typical Applications

### ■ High Density



Smart Camera



Speed Camera



Mobile Device

### ■ Automation & Robot Controller



Robot Controller



CNC

## IEI Computer on Module Form Factors



**COM Express Type 10**

Mini: 84 mm x 55 mm



**COM Express Type 6**

Compact: 95 mm x 95 mm



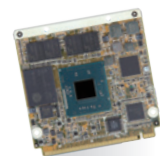
**COM Express Type 6**

Basic: 125 mm x 95 mm



**COM Express Type 7**

Basic: 125 mm x 95 mm



**Qseven 2.0**

70 mm x 70 mm

# Computer on Module Selection Guide

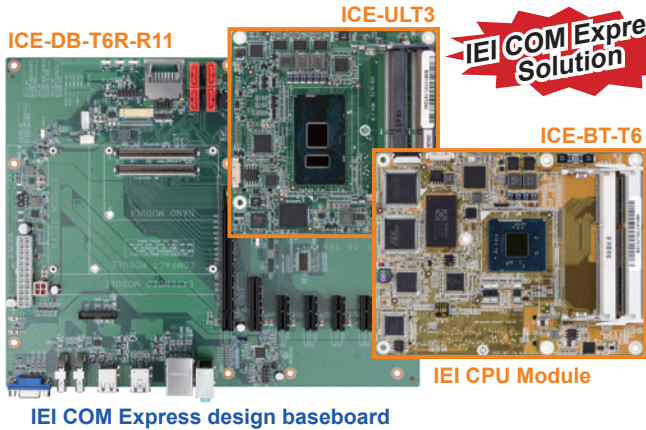
**New**



Computer on Module	COM Express Type 10	COM Express Type 6	COM Express Type 6	Qseven 2.0
COM Express Size	Mini: 84 mm x 55 mm	Compact: 95 mm x 95 mm	Basic: 125 mm x 95 mm	70 mm x 70 mm
Model Name	ICE-BT-T10 ICE-BT-T10W2	ICE-ULT3	ICE-BT-T6	iQ7-BT-E38001 iQ7-BT-E38001W2
CPU Socket	On board	On board	On board	On board
CPU Type	Intel® Atom™/Celeron® on-board SoC	Intel® Skylake ULT on-board SoC	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Chipset	Intel® Atom™/Celeron® on-board SoC	Intel® Skylake ULT	Intel® Atom™/Celeron® on-board SoC	Intel® Atom™/Celeron® on-board SoC
Memory	2 GB soldered down 1066/1333 MHz DDR3L memory (up to 8 GB)	Two 260-pin 2133/1867 MHz dual-channel DDR4 SDRAM Unbuffered DIMM supported (system max. 32GB)	Two 204-pin 1066/1333 MHz dual-channel DDR3L SO-DIMM supported (system max. 8 GB)	2 GB soldered down 1066/1333 MHz DDR3L memory (up to 4 GB)
Display Interface	Dual display supported 1 x VGA 1 x DDI 1 x eDP	Tripal display supported 2 x DDI: DisplayPort/HDMI/DVI 1 x DDI: Embedded DP (Option with 1 x Dual Channel LVDS 18/24 bit via CH7511B)	Dual display supported 1 x VGA 1 x DDI 1 x 18/24-bit dual-channel LVDS	Dual display supported 1 x DDI 1 x 18/24-bit dual-channel LVDS
Ethernet	LAN1: Intel® I210 PCIe controller	LAN1: Intel® I219LM	LAN1: Intel® I210 PCIe controller	LAN1: Intel® I210 PCIe controller
I/O Interface	1 x I <sup>2</sup> C 1 x SMBus 1 x LPC 1 x USB 3.1 Gen 1 2 x Serial port (TX & RX) 4 x USB 2.0	2 x RS-232 (2-Wire) to base board 4 x USB 2.0 to base board 4 x USB 3.1 Gen 1 to base board (with 4 x USB 2.0)	1 x I <sup>2</sup> C 1 x LPC 1 x SMBus 2 x Serial port (TX & RX) 4 x USB 3.1 Gen 1 7 x USB 2.0	1 x LPC 1 x SDIO 1 x SMBus 1 x USB 3.1 Gen 1 3 x I <sup>2</sup> C 6 x USB 2.0
Storage Interface	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 6Gb/s signal to base board eMMC 5.0 (optional)	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)	2 x SATA 3Gb/s Optional soldered down SSD up to 64 GB (SATA port 1)
Audio	High-definition Audio interface			
Power Consumption	12V@0.43A, Vcore_12V@0.9 A (Intel® Atom™ E3845 CPU with 2 GB 1333 MHz DDR3L memory)	12V@2.57A, 5VSB@0.04A, 5V@0.02A (Intel® Core™ i7-6600U with two 8GB 2400 MHz DDR4 memory)	12V@0.54A, Vcore_12V@0.95A (Intel® Celeron® J1900 CPU with two 8 GB 1333 MHz DDR3 memory)	3.3V@0.13A, 5V@0.13A, 12V@1.35A, 5VSB@0.12A (Intel® Atom™ E3845 CPU with 2 GB on-board memory)
Watchdog Timer	Software programmable and supports 1~255 sec. system reset			
Operation Environment	Temperature Range: -20°C ~ 60°C -40°C ~ 85°C (ICE-BT-10-E38001W2) Relative Humidity: 10% ~ 95% non-condensing	Operating Temperature: -20°C ~ 60°C Operating Humidity: 5% ~ 95%, non-condensing	Temperature Range: -20°C ~ 60°C Relative Humidity: 10% ~ 95% non-condensing	Temperature Range: -20°C ~ 60°C -40°C ~ 85°C (iQ7-BT-E38001W2) Relative Humidity: 10% ~ 95% non-condensing
Expansion Slot	3 x PCIe x1 signal to baseboard	1 x PCIe x1 signal to base board (Via PCIe x16 channel) 8 x PCIe x1 signal to base board	5 x PCIe x1 signal to baseboard	3 x PCIe x1 signal to baseboard

# IEI COM Express Series

**COM Express** is a computer-on-module (COM) form factor series. It can be integrated in various customized applications. Each COM Express module integrates CPU, memory and common I/O of a PC/AT including USB, audio, graphics, and Ethernet. All I/O signals are mapped to two high density, low profile connectors on the bottom side of the module. The COM Express specification is hosted by PICMG. The ICE (IEI COM Express) modules provide complete performance range for users to choose. With the IEI COM Express baseboard design service, users can quickly enjoy the benefits of modularization and efficiency.



**IEI COM Express Solution**

**Transfer your ETX Module to IEI COM Express Solution**  
COM Express provides PCI Express, dual-channel LVDS, GbE, eight USB and four SATA ports for I/O expansion

Platform	ETX	COM Express Type 2 Basic Module
Size	95 mm x 114 mm	95 mm x 125 mm
VGA	Yes	Yes
LCD	TTL or LVDS	Up to 2x single LVDS or dual-channel LVDS
SDVO	N/A	Up to 2 SDVO (shared with PCIe x16)
Expansion	PCI & ISA	PCIe & PCI
Ethernet	10/100 Mbps	10/100/1000 Mbps
USB	Up to 4 ports	Up to 8 ports
SATA	Up to 2 Ports (ETX 3.0 only)	Up to 4 SATA
IDE	Up to 2 channels	Up to 1 channel

## COM Express Pinout Types

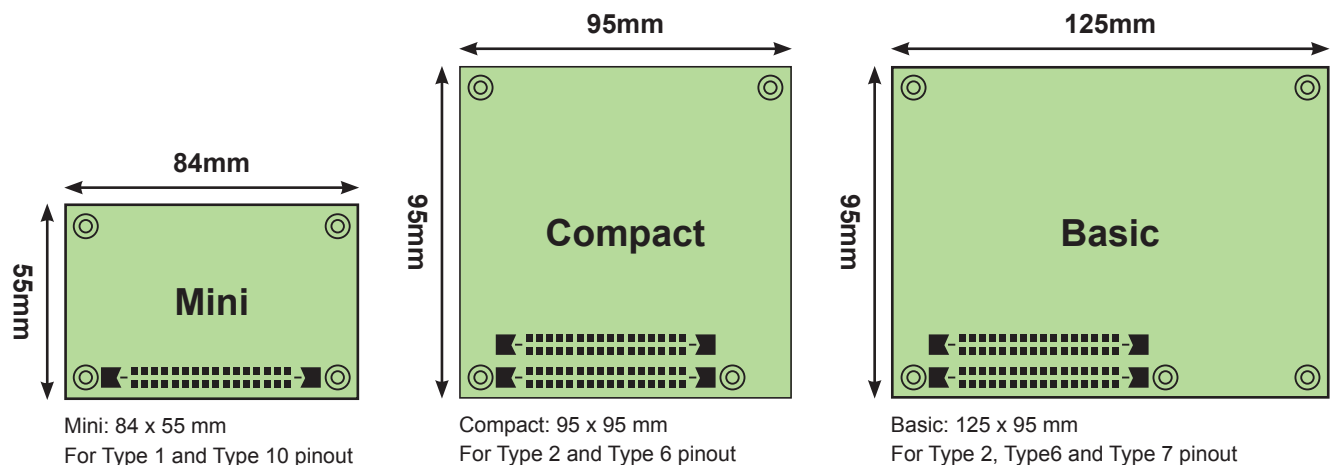
**COM Express**, a computer-on-module (COM) form factor, is a highly integrated and compact PC that can be used in a design application much like an integrated circuit component. Each COM Express Module COM integrates core CPU and memory functionality, the common I/O of a PC/AT, USB, audio, graphics (PEG), and Ethernet. All I/O signals are mapped to two high density, low profile connectors on the bottom side of the module.

### Types

The COM Express specification is hosted by PICMG. There are seven different pinouts defined in the specification. The most common used pinouts are Type 6 and Type 10 in the revision 2.0 of the COM Express specification. The latest pinouts added in the revision 3.0 of the COM Express specification is Type 7.

Types	PCIe Lanes	PEG/SDVO	Display	SATA	1GbE/10GbE	PCI	IDE	USB 2.0	USB 3.1 Gen 1
Type 1	Up to 6	x	VGA, LVDS	4	1/0	x	x	8	x
Type 10	Up to 4	/1	DDI, LVDS	2	1/0	x	x	8	2
Type 2	Up to 22	1/2	VGA, LVDS, PEG, SDVO	4	1/0	✓	x	8	x
Type 6	Up to 24	1/	VGA, LVDS, PEG, 3 x DDI	4	1/0	x	x	8	4
Type 7	Up to 32	2	NA	2	1/4	x	x	4	4

### The Specification Defines Three Module Sizes:



◆ Pinout Comparison of Type 10

Type 10 Pinout

B	LPC SMB I <sup>2</sup> C	2 ports SATA	2 ports USB 3.1 Gen 1	Audio	8 ports USB 2.0	4 lanes PCIe x1	Reserve Pin	DDI		5VSB	12V	
A	GBE							LVDS A	Others	SPI	2 ports serial	12V

◆ Pinout Comparison of Type 6 and Type 7

Type 6 Pinout

D	4 ports USB 3.1 Gen 1/2.0	2 lanes PCIe x 1	DDI 1	DDI 2	DDI 3	PCIe x16	12V
C							

B	LPC SMB I <sup>2</sup> C	4 ports SATA	Audio	8 ports USB 2.0	6 lanes PCIe x1	LVDS B	VGA	5VSB	12V	
A	GBE					LVDS A	Others	SPI	2 ports serial TPM	12V

Type 7 Pinout

D	4 ports USB 3.1 Gen 1/2.0	2 lanes PCIe x 1	4 x 10GbE LAN			PCIe x16	12V
C							

B	LPC/eSPI	2 ports SATA	2 lanes PCIe x1	Reserve Pin	4 ports USB 2.0	2 lanes PCIe x1	6 lanes PCIe x1	4 lanes PCIe x1	NCSI	5VSB	12V	
A	GBE								Others	SPI	2 ports serial TPM	12V

■ Installing the COM Express

◆ Thermal Design of COM Express

COM Express definition includes a heatspreader that acts as a thermal interface between the COM Express module and the system's cooling solution. The height of a COM Express module, including the heatspreader, has been defined as 18 mm and covers the complete area of the COM Express. All heat generating components are thermally conducted to the heatspreader in order to avoid hot spots.

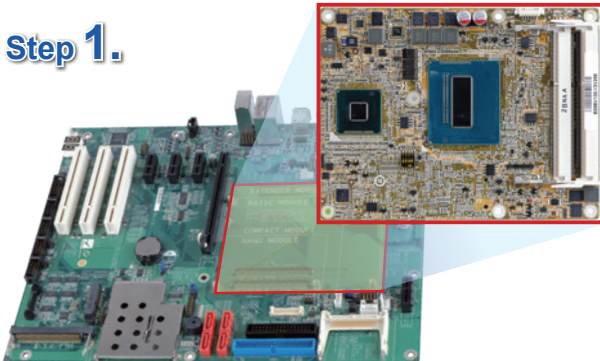


1. Installing the COM Express

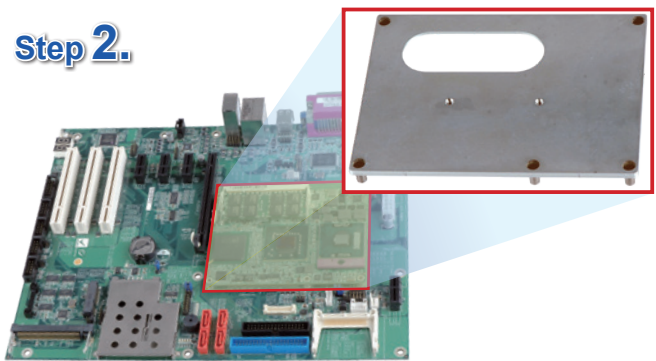
Firmly insert the COM Express into the COM Express socket.

2. Installing the heatspreader

A heatspreader must be installed on the COM Express. Thermal pads must be smeared on the lower side of the heatspreader before it is mounted on the COM Express. Heatspreaders are mounted on the CPU, Northbridge and Southbridge chipsets to ensure the operating temperature of these chips remain low.



▲ Installing the COM Express



▲ Installing the heatspreader

### 3. Installing the system's cooling solution

In addition to the heatspreader, COM Express needs another heatsink or other thermal solution to cool down the COM Express.

Before installing the system's cooling solution, make sure that you have properly applied thermal interface material to the heatspreader.

### Operating Temperature

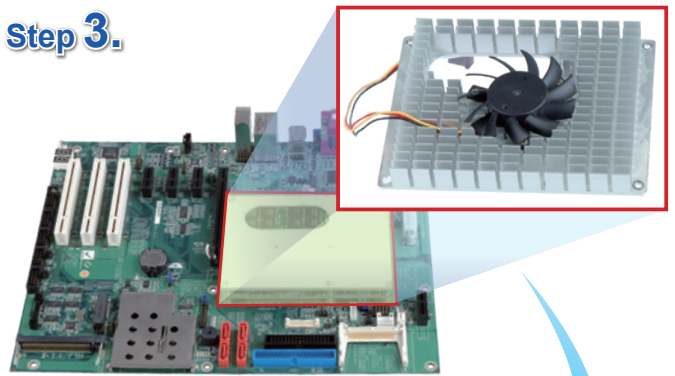
The maximum and minimum operating temperatures for the standard COM Express are listed below.

- Minimum Operating Temperature: 0°C (32°F)
- Maximum Operating Temperature: 60°C (140°F)

### WARNING:

Never run the embedded module without the heat sink. The heatspreader plate shipped with the COM Express acts as a thermal interface between the module and the heat sink. The heat sink must be installed on the heatspreader plate to maintain proper operating temperatures. Make sure to maintain the heatspreader plate temperature under 60°C in operation.

### Step 3.



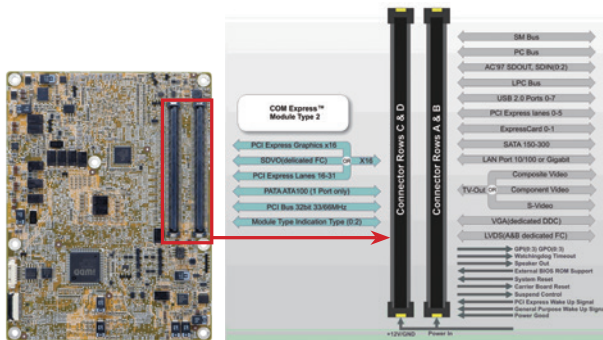
▲ Installing the system's cooling solution



## Benefits

### A: High Compatibility

- IEI ICE modules follow standard COM Express design guide and have high compatibility
- ICE modules are compatible with all baseboards compliant with COM Express specifications
- Complete performance level for customers' choice



#### Embedded Fanless

Fanless

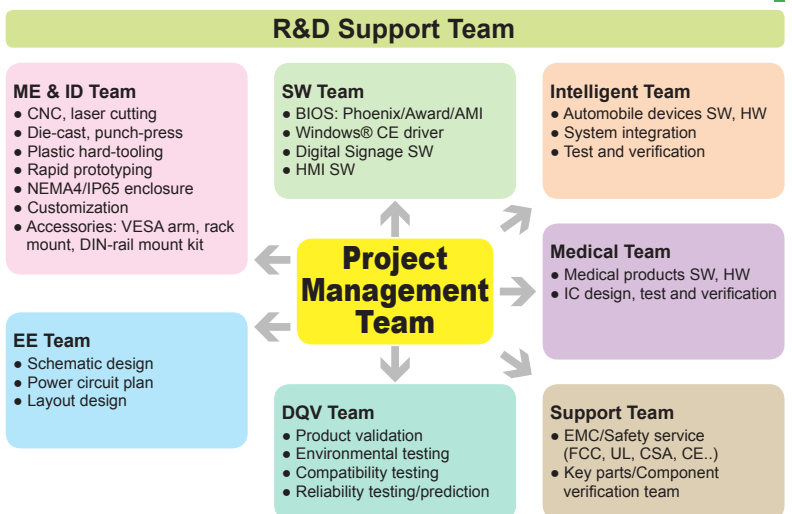
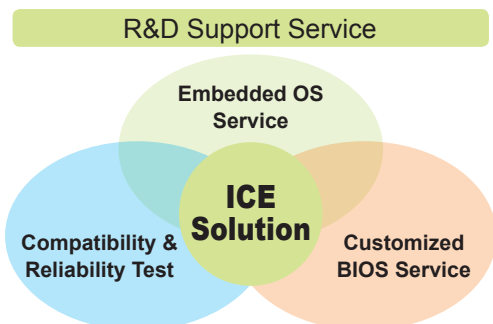
#### Performance Dual Core

Dual Core

Embedded, single core, or dual core complete performance level could be immediately applied on the baseboard.

### B: Strong Support

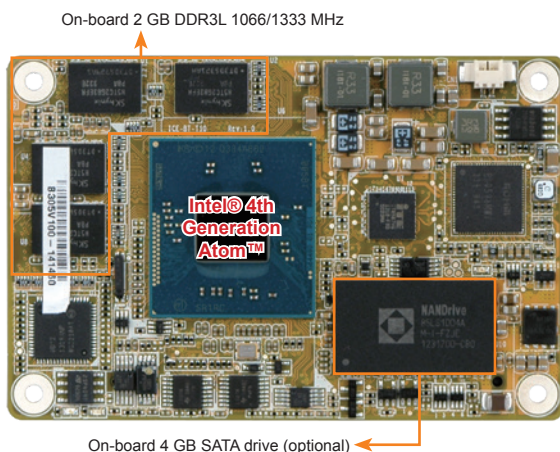
- With strong R&D resources, IEI provides customers innovative leading products and service to drive successful experience.
- IEI provides complete turnkey solutions from hardware, software and industrial BIOS design support.



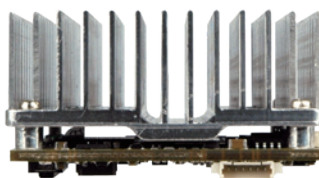
**TYPE 10**

# ICE-BT-T10-T10W2

COM Express Rev 2.1 Mini Size Type 10 Module, Intel® 4th Generation Atom™ Processor, VGA, DDI, GbE, SATA 3Gb/s, USB and Audio, -40°C to +85°C and RoHS



The one-piece heatsink for COM Express Type 10 provides better thermal solution



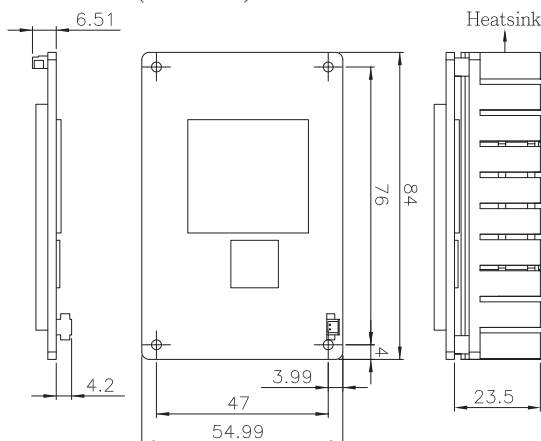
## Specifications

- ◆ CPU
  - Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  - Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
- ◆ Memory
  - 2 GB soldered down 1066/1333 MHz DDR3L memory (up to 8 GB)
- ◆ BIOS
  - UEFI BIOS
- ◆ Graphics Engine
  - Intel® HD Graphics Gen 7 Engine with 4 execution units, supports DX11.1, OpenGL 4.2 and OpenCL1.2
- ◆ Display Output
  - 1 x VGA (up to 2560x1600@60Hz)
  - 1 x DDI: DisplayPort/HDMI/DVI (DP up to 2560x1600@60Hz / HDMI up to 1920x1080@60Hz)
  - 1 x DDI: Embedded DP (up to 2560x1600@60Hz)
- ◆ Ethernet
  - Intel® I210-AT GbE controller (Intel® I210-IT GbE controller with W2 sku)
- ◆ Storage
  - 2 x SATA 3Gb/s signal to baseboard
  - Optional soldered down SSD up to 64 GB (SATA port 1)
- ◆ I/O Interface
  - 4 x USB 2.0 signal to baseboard
  - 1 x USB 3.1 Gen 1 (5Gb/s) signal to baseboard
- ◆ Audio
  - High-definition Audio interface to baseboard
- ◆ GPIO
  - Yes, to baseboard
- ◆ SMBus
  - Yes, to baseboard
- ◆ I²C
  - Yes, to baseboard
- ◆ LPC
  - Yes, to baseboard
- ◆ SPI
  - Yes, to baseboard
- ◆ Internal Storage
  - 2-Kb serial I²C bus EEPROM supports EAP1 Rev. 1.0
- ◆ Serial Port
  - Two serial ports to baseboard (TX & RX from EC)
- ◆ Expansion
  - 3 x PCIe x1 signal to baseboard
- ◆ Watchdog Timer
  - Software programmable, supports 1~255 sec. system reset (from EC)
- ◆ Power Consumption
  - 12V@0.43A, Vcore\_12V@0.9 A (Intel® Atom™ E3845 CPU, 2 GB 1333 MHz DDR3L memory)
- ◆ Operating Temperature
  - 20°C ~ 60°C
  - 40°C ~ 85°C (ICE-BT-10-E38001W2)
- ◆ Storage Temperature
  - 20°C ~ 60°C
  - 40°C ~ 85°C (ICE-BT-10-E38001W2)
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions
  - 84 mm x 55 mm (mini size)
- ◆ Weight
  - GW: 300g / NW: 150g
- ◆ CE/FCC compliant

## Features

- Intel® 22nm Atom™ on-board SoC supported
- Type 10 connector pinout according to COM.0 R2.1
- Supports 2 GB 1066/1333 MHz DDR3L memory
- Optional soldered down 4 GB SSD
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery
- Support wide range operating temperature: -40°C to +85°C

## Dimensions (Unit: mm)



## Packing List

1 x ICE-BT-T10 single board computer	
1 x Heatsink	1 x QIG

## Ordering Information

Part No.	Description
ICE-BT-T10-E38451W2-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3845 (quad core, 10W), on-board 2 GB DDR3L, VGA, DDI, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) SATA and HD Audio, -40°C ~ 85°C and RoHS
ICE-BT-T10-E38251W2-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3825 (dual core, 6W), on-board 2 GB DDR3L, VGA, DDI, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) and HD Audio, -40°C ~ 85°C and RoHS
ICE-BT-T10-E38451-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3845 (quad core, 10W), on-board 2 GB DDR3L, VGA, DDI, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) SATA and HD Audio, and RoHS
ICE-BT-T10-E38251-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3825 (dual core, 6W), on-board 2 GB DDR3L, VGA, DDI, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) and HD Audio, and RoHS
ICE-BT-T10-E38151-R10	COM Express Basic Type 10 module supports Intel® Atom™ processor E3815 (single core, 5W), on-board 2 GB DDR3L, VGA, DDI, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) and HD Audio, and RoHS
ICE-DB-T10-R10	Baseboard for COM Express Type 10 module COM.0 Rev. 2.1, supports PICMG EAP1 R1.0

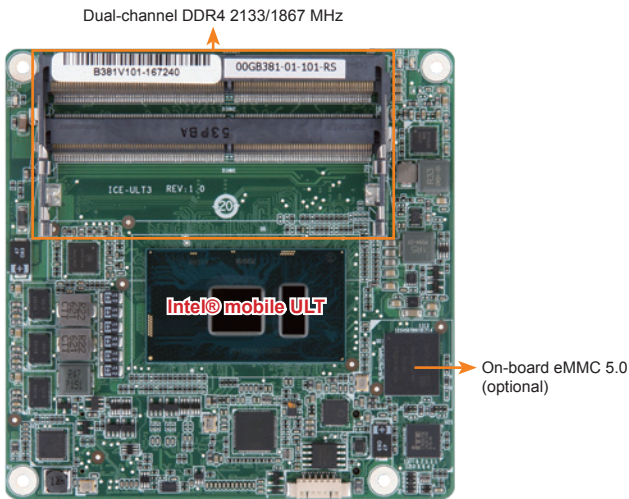
Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

**TYPE 6**

# ICE-ULT3

COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ ULT Processor, DDR4, VGA, LVDS, DDI, GbE, SATA 6Gb/s, USB 3.1 Gen 1 (5Gb/s) and HD Audio, RoHS

**New**



One piece heat sink for COM Express Basic Size provides better thermal solution



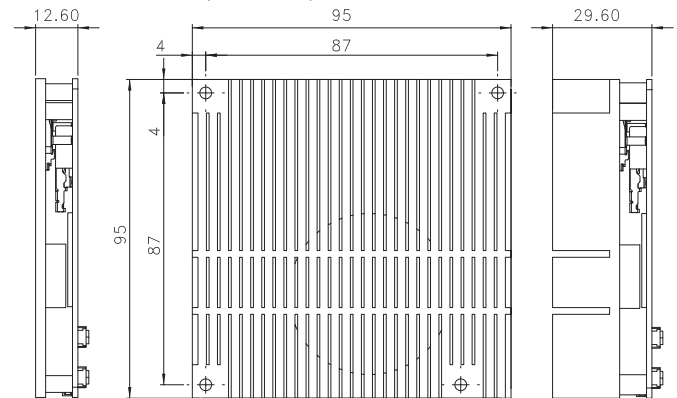
## Specifications

- ◆ CPU
  - 6th generation Intel® mobile ULT on-board SoC
  - Intel® Core™ i7-6600U (up to 3.4GHz, dual-core, 4MB cache, TDP=15W)
  - Intel® Core™ i5-6300U (up to 3.0GHz, dual-core, 3MB cache, TDP=15W)
  - Intel® Core™ i3-6100U (up to 2.3GHz, dual-core, 3MB cache, TDP=15W)
  - Intel® Celeron® processor 3955U (up to 2.0GHz, dual-core, 2MB cache, TDP=15W)
  - Intel® Celeron® processor 3855U (up to 1.6GHz, dual-core, 2MB cache, TDP=15W)
- ◆ Memory
  - Two 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs support up to 32GB
- ◆ BIOS
  - UEFI BIOS
- ◆ Graphic Engine
  - Intel® HD Graphics Gen 9 support for DX11/12, OCL 2.x, OGL 4.3/4.4, ES 2.0 Decode/Encode for HEVC, VP8, VP9 2\_VDENC
- ◆ Display Output
  - 1 x DDI: DisplayPort/HDMI/DVI (up to 3840x2160@60Hz)
  - 1 x DDI: DisplayPort/HDMI/DVI (up to 3840x2160@60Hz) (Option with 1 x CRT via CH7517) (up to 1920x1200@60Hz)
  - 1 x DDI: Embedded DP (up to 3840x2160@60Hz) (Option with 1 x Dual Channel LVDS 18/24 bit via CH7511B) (up to 1920x1200@60Hz)
- ◆ Ethernet
  - Intel® Clarkville-V I219LM Support Intel® AMT 11.0
- ◆ I/O Interface
  - 2 x RS-232 (2-Wire) to base board
  - 4 x USB 2.0 to base board
  - 4 x USB 3.1 Gen 1 (5Gb/s) to base board (with 4 x USB 2.0)
  - 2 x SATA 6Gb/s signal to base board
- ◆ Audio
  - High definition audio interface
- ◆ SMBus
  - YES, to base board
- ◆ I<sup>2</sup>C
  - YES, to base board
- ◆ LPC
  - YES, to base board
- ◆ Expansion
  - 1 x PCIe x1 signal to base board (Via PCIe x16 channel)
  - 8 x PCIe x1 signal to base board
- ◆ Watchdog Timer
  - Software programmable, supports 1~255 sec. system reset
- ◆ eMMC
  - eMMC 5.0 (optional)
- ◆ GPIO
  - 8 bit GPIO, to base board
- ◆ TPM
  - Through base board
- ◆ Power Supply
  - 12V: 12V±5%, 5VSB: 5V±5%, RTC Battery: 2.0-3.3V
- ◆ Power Consumption
  - +12V@2.57A, 5VSB@0.04A, 5V@0.02A (Intel® Core™ i7-6600U with two 8GB 2400 MHz DDR4 memory)
- ◆ Operating Temperature
  - 20°C ~ 65°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimension
  - 95 mm x 95 mm
- ◆ Weight
  - GW: 600g / NW: 250g
- ◆ CE/FCC compliant

## Features

- Intel® Skylake ULT Processors supported
- Intel® HD Graphics technology integrates high-performance graphics and media processing
- Two 260-pin 2133/1867 MHz Dual-Channel DDR4 SDRAM Unbuffered DIMM supported (system max. 32GB)
- 18/24-bit dual-channel LVDS, analog CRT, DDI supported
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery
- Support Intel® AMT 11.0

## Dimensions (Unit: mm)



## Packing List

1 x ICE-ULT3 single board computer	
1 x Heatsink	1 x QIG

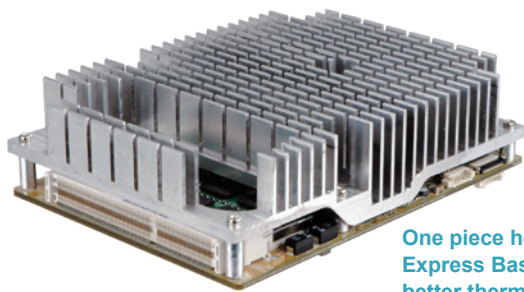
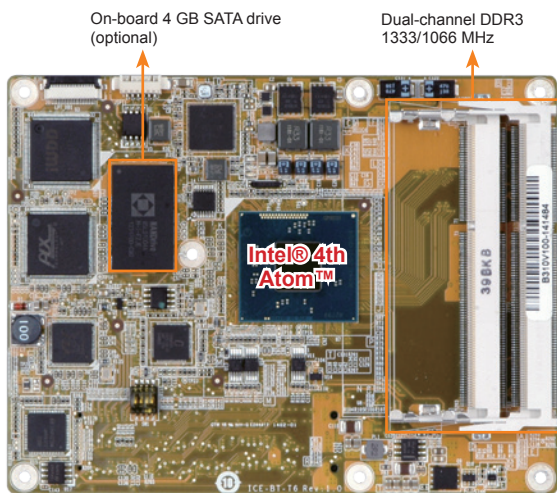
## Ordering Information

Part No.	Description
ICE-ULT3-i7-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ i7-6600U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.1 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-i5-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ i5-6300U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.1 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-i3-R10	COM Express Compact size Type 6 Module, 6th Generation Intel® Core™ i3-6100U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.1 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-C-R10	COM Express Compact size Type 6 Module, Intel® Celeron® 3955U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.1 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-ULT3-CE-R10	COM Express Compact size Type 6 Module, Intel® Celeron® 3855U (15W) on-board Processor (ULT), DDR4, VGA, LVDS, DDI, GbE, USB 3.1 Gen 1 (5Gb/s), SATA 6Gb/s and HD Audio, RoHS
ICE-DB-T6R-R11	Base Board for COM Express Type 6 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0

**TYPE 6**

# ICE-BT-T6

COM Express Rev 2.1 Basic Type 6 Module, Intel® 4th Generation Atom™ Processor, VGA, DDI, GbE, SATA 3Gb/s, USB and Audio, RoHS



One piece heat sink for COM Express Basic Size provides better thermal solution



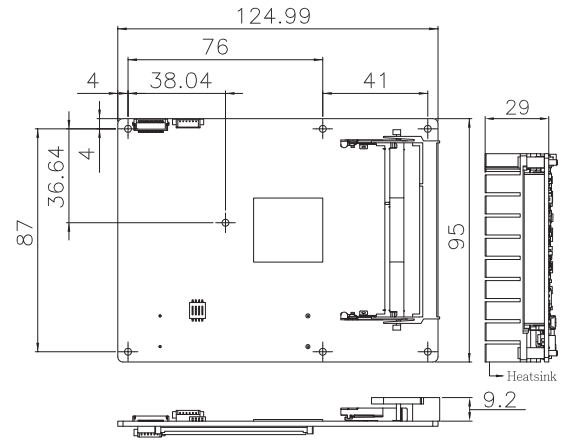
## Specifications

- ◆ CPU
  - Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
  - Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
  - Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
  - Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
  - Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Celeron® N2930 on-board SoC (1.83GHz, quad-core, 2MB cache, TDP=7.5W)
  - Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- ◆ Memory
  - Two 204-pin 1066/1333 MHz dual-channel DDR3L SDRAM unbuffered DIMMs support up to 8 GB
- ◆ BIOS
  - UEFI BIOS
- ◆ Graphics Engine
  - Intel® HD Graphics Gen 7 Engine with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL 1.2
- ◆ Display Output
  - 1 x VGA (up to 2560x1600@60Hz)
  - 1 x DDI 1 (DP up to 2560x1600@60Hz / HDMI up to 1920x1080@60Hz)
  - 1 x LVDS: 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
- ◆ Ethernet
  - Intel® I210 GbE Ethernet
- ◆ Storage
  - 2 x SATA 3Gb/s signal to baseboard
  - Optional soldered down SSD up to 64 GB (SATA port 1)
- ◆ Embedded Controller
  - ITE IT8528E/FX
- ◆ USB
  - 7 x USB 2.0 signal to baseboard
  - 4 x USB 3.1 Gen 1 (5Gb/s) signal to baseboard (via 1 to 4 USB 3.1 Gen 1 (5Gb/s) hub)
- ◆ Audio
  - High Definition Audio interface to baseboard
- ◆ GPIO
  - Yes, to baseboard
- ◆ SMBus
  - Yes, to baseboard
- ◆ I²C
  - Yes, to baseboard
- ◆ LPC
  - Yes, to baseboard
- ◆ SPI
  - Yes, to baseboard
- ◆ Internal Storage
  - 2-Kb serial I²C bus EEPROM supports EAP1 Rev. 1.0
- ◆ Serial Port
  - 2 x Serial ports to baseboard (TX & RX from EC)
- ◆ Expansion
  - 5 x PCIe x1 signal to baseboard (2 from SoC, 3 from PLX PEX8605 switch IC)
- ◆ Watchdog Timer
  - Software programmable, supports 1~255 sec. system reset (by EC)
- ◆ Power Consumption
  - +12V@0.54A, Vcore\_12V@0.95A
  - (Intel® Celeron® J1900 CPU with two 8 GB 1333 MHz DDR3 memory)
- ◆ Operating Temperature
  - 20°C ~ 60°C
- ◆ Storage Temperature
  - 30°C ~ 70°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions: 125 mm x 95 mm
- ◆ Weight: GW: 600g / NW: 200g
- ◆ CE/FCC compliant

## Features

- Intel® 22nm Atom™ or Celeron® on-board SoC supported
- Intel® HD Graphics Gen7 integrates high-performance graphics and media processing
- Supports 1333/1066 MHz DDR3L (1.35V) memory, up to 8 GB
- Supports one analog CRT, one 24-bit dual-channel LVDS, and one DDI
- Optional soldered down 4 GB SSD
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery

## Dimensions (Unit: mm)



## Packing List

1 x ICE-BT-T6 single board computer	
1 x Heatsink	1 x QIG

## Ordering Information

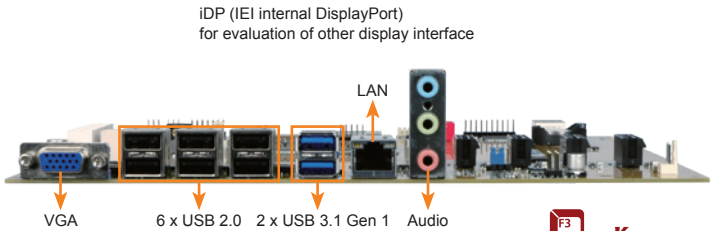
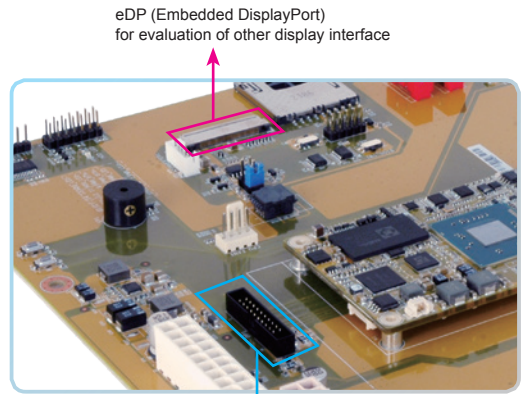
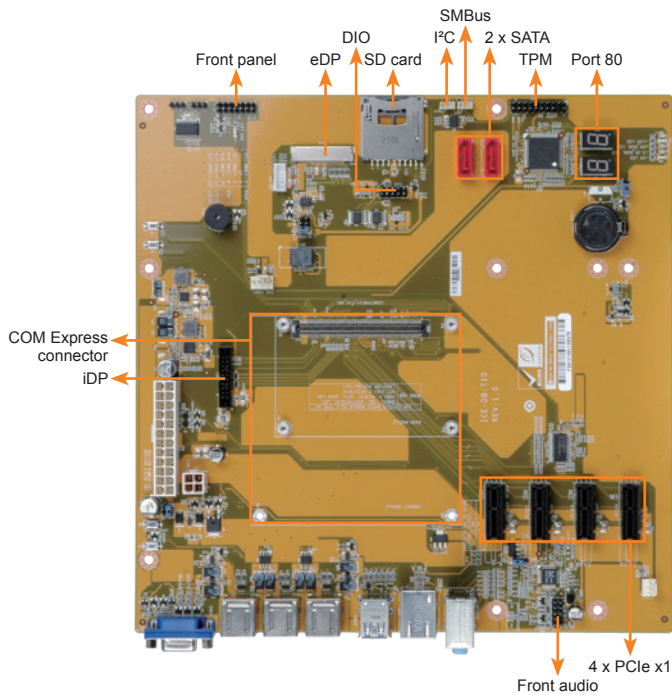
Part No.	Description
ICE-BT-T6-J19001-R10	COM Express Basic Type 6 module with Intel® Celeron® quad-core processor J1900 (10W), VGA, DDI, LVDS, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) and HD Audio, RoHS
ICE-BT-T6-N29301-R10	COM Express Basic Type 6 module with Intel® Celeron® quad-core processor N2930 (7.5W), VGA, DDI, LVDS, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) and HD Audio, RoHS
ICE-BT-T6-N28071-R10	COM Express Basic Type 6 module with Intel® Celeron® dual-core processor N2807 (4.3W), VGA, DDI, LVDS, GbE, SATA, USB 3.1 Gen 1 (5Gb/s) and HD Audio, RoHS
ICE-BT-T6-E38XX1-R10	COM Express Basic Type 6 module with Intel® Atom™ processor E38XX, VGA, DDI, LVDS, USB 3.1 Gen 1 (5Gb/s), GbE, SATA and HD Audio, RoHS (by request MOQ: 100pcs/lot)
ICE-DB-T6R-R11	Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1, supports PICMG EAPI R1.0
19100-000186-00-RS	Heat spreader for ICE-BT-T6



**TYPE 10**

# ICE-DB-T10

Baseboard for COM Express Type 10 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0



## Specifications

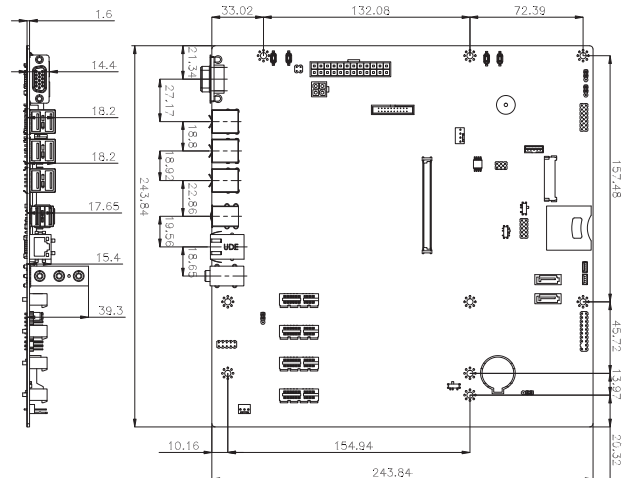
- ◆ Form Factor  
microATX form factor baseboard (244mm x 244mm)
- ◆ COM Express type  
Supports COM Express Compact/Mini module using connector pin out Type 10
- ◆ Display Interfaces  
1 x eDP  
1 x VGA  
1 x DisplayPort pin-header
- ◆ Audio  
Realtek ALC662 HD Audio codec (Line-in, Line-out, Mic)
- ◆ Internal I/O Interface  
4 x PCIe x1  
2 x SATA port  
2 x RS-232 from COM Express (only TX, RX, GND)
- ◆ External I/O Interface  
1 x VGA  
2 x USB 3.1 Gen 1 (5Gb/s)  
1 x RJ-45
- ◆ Front Audio  
1 x Front audio (2x5 pin)
- ◆ TPM  
1 x TPM connector (2x10 pin)
- ◆ 80 Port  
1 x 80 port (2x7 segment display)
- ◆ Front Panel  
1 x Front panel (2x7 pin, power LED, HDD LED, speaker(Buzzer), power button, reset button)
- ◆ I²C  
1 x I²C (1x4 pin)
- ◆ SMBus  
1 x SMBus (1x4 pin)
- ◆ Internal Storage  
EEPROM (support EAPI R1.0)
- ◆ LPC  
1 x LPC
- ◆ Fan Connector  
1 x 4-pin / 1 x 3 pin CPU module fan connector
- ◆ Watchdog Timer  
Software programmable, support 1~255 sec. system reset
- ◆ Power Supply  
ATX / AT power supply  
24+4 pin
- ◆ Operating Temperature  
-20°C ~ 60°C
- ◆ Storage Temperature  
-30°C ~ 70°C
- ◆ Operating Humidity  
5% ~ 95%, non-condensing
- ◆ Dimensions  
243.8 mm x 243.8 mm (9.6" x 9.6")
- ◆ Weight: GW:550g / NW:350g
- ◆ CE/FCC compliant



## Features

- microATX form factor baseboard for COM.0 Rev. 2.1, Pin-out Type 10
- Support four PCIe x1
- Support eDP, VGA and iDP
- Support PICMG EAPI R1.0

## Dimensions (Unit: mm)



## Packing List

1 x COM Express Baseboard	1 x SATA cable
1 x Mini jumper pack	1 x QIG

## Ordering Information

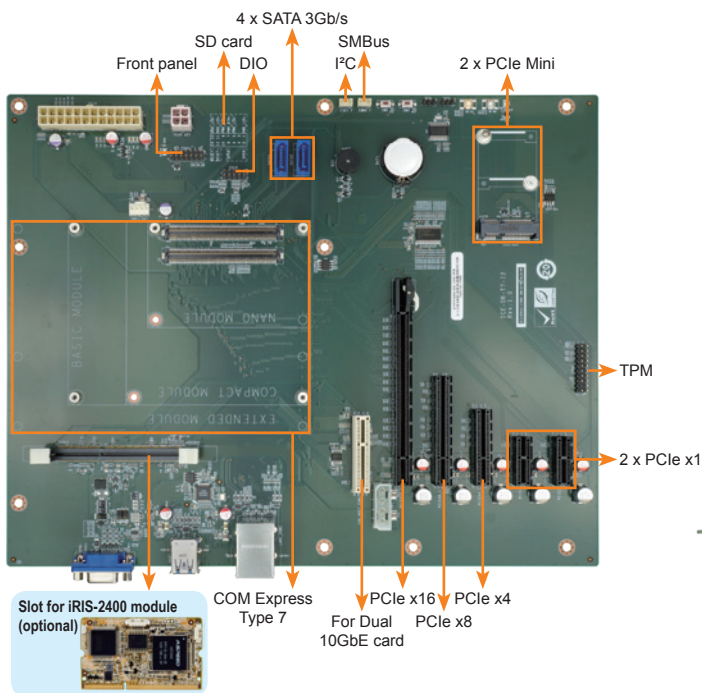
Part No.	Description
ICE-DB-T10-R10	Baseboard for COM Express Type 10 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0
19800-000082-RS	RS-232/422/485 cable, 14-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

**TYPE 7**

# ICE-DB-T7-i2

Base Board for COM Express Type 7 Module COM.0 Rev. 2.1

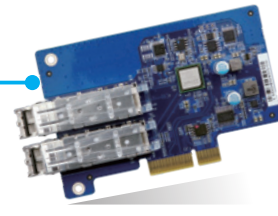
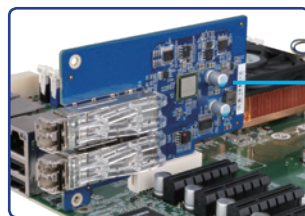
**New**



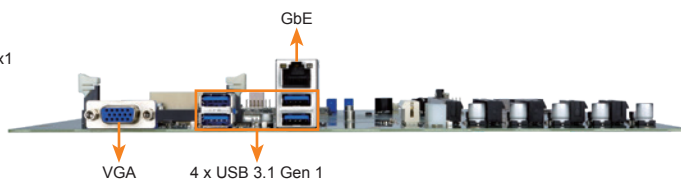
## High-speed 10GbE Add-on Card Support

### Integrated 10GbE LAN Interface

10GbE LAN card meets customer demand for high-speed internet



LAN-10G2SF-PHY-CS4227



TPM 1.2 Support

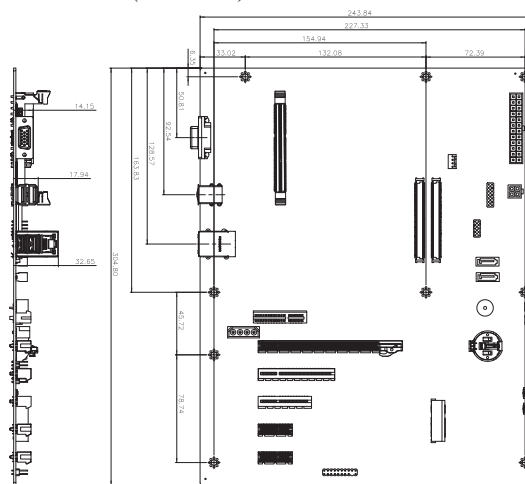
## Specifications

- ◆ Form Factor
  - ATX form factor baseboard
- ◆ CPU
  - Supports COM Express Compact / Basic module using connector pinout Type 7
- ◆ Display Interfaces
  - 1 x VGA from iRIS-2400
- ◆ Expansion
  - 1 x PCIe x16 (x16 Gen 3 signal)
  - 1 x PCIe x8 (x8 Gen 3 signal)
  - 1 x PCIe x4 for 10GbE PHY card
  - 1 x PCIe x4 (x4 Gen 2 signal)
  - 1 x PCIe x4 (x1 Gen 2) (x4 signal option)
  - 2 x PCIe x1 (x1 Gen 2)
- ◆ Internal I/O Interface
  - 2 x RS-232 from COM Express (only TX, RX, GND)
  - 2 x RS-232 from SIO
  - 2 x SATA port
- ◆ Rear I/O Interface
  - 4 x USB 3.1 Gen 1 (5Gb/s)
  - 1 x VGA
  - 1 x RJ-45 connector
- ◆ TPM
  - 1 x TPM (2x10 pin header)
- ◆ 80 port
  - 2 x 7 segment display
- ◆ Front Panel
  - 1 x Front\_Panel (Power LED, HDD LED, Speaker (Buzzer), Power Button, Reset Button)
- ◆ iRIS Remote Management Module
  - 1 x iRIS-2400 slot
- ◆ I²C
  - 1 x I²C (1x4 pin wafer)
- ◆ SMBus
  - 1 x SMBus (1x4 pin wafer)
- ◆ Internal Storage
  - EEPROM (support EAP1 R1.0)
- ◆ Watchdog Timer
  - Software programmable, supports 1~255 sec system reset
- ◆ GPIO
  - 8-bit GPIO
- ◆ Power Supply
  - ATX / AT Power Supply
  - 24+4 pin
- ◆ Fan Connector
  - 1 x 4-pin / 1x 3 pin CPU module fan connector
  - 1 x 3-pin system fan connector by SIO
- ◆ Temperature
  - 40°C ~ 85°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions
  - 304.8 mm x 243.8 mm (12" x 9.6")
- ◆ Weight: GW:590g / NW:390g
- ◆ CE/FCC compliant

## Features

- ATX form factor baseboard for COM.0 Rev. 3.0, pinout Type 7
- Support 1 x PCIe x8 for 10GbE PHY card
- Support 32 PCIe lanes
- Support PICMG EAP1 R1.0
- Support IPMI 2.0 via iRIS-2400 module

## Dimensions (Unit: mm)



## Packing List

1 x COM Express Baseboard	1 x Mini jumper pack
1 x SATA cable (P/N: 32000-062800-RS)	1 x QIG

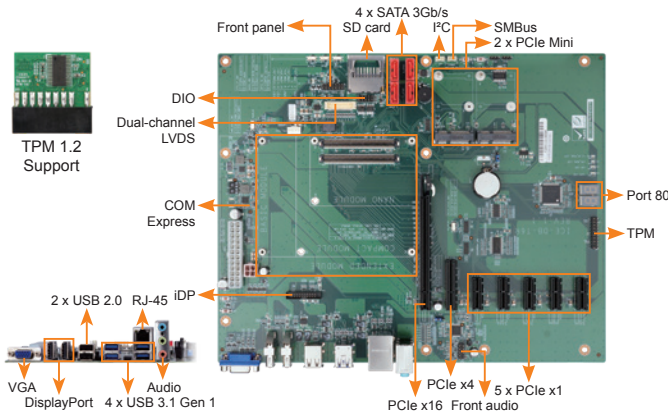
## Ordering Information

Part No.	Description
ICE-DB-T7-i2-R10	Baseboard for COM Express Type 7 Module COM.0 Rev. 2.1, support PICMG EAP1 R1.0, iRIS-2400
LAN-10G2SF-PHY-CS4227	10 GbE LAN card, dual port support, RoHS
iRIS-2400-R10	IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface



# ICE-DB-T6R

Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1 (for ICE-ULT3, ICE-QM871 & ICE-BT-T6)



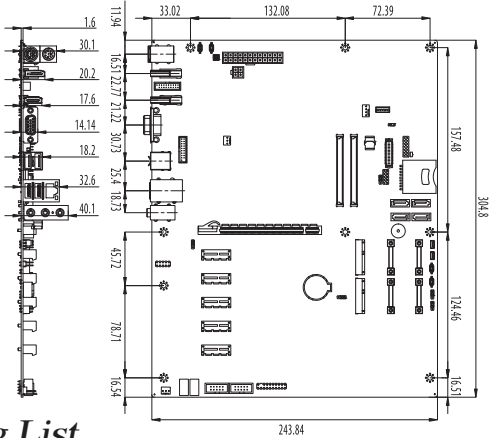
## Features

- ATX form factor baseboard for COM.0 Rev. 2.1, pin-out Type 6
- Support one PCIe x16, one PCIe x4, five PCIe x1, two PCIe Mini
- Support PICMG EAPI R1.0

## Specifications

- ◆ Form Factor: ATX form factor baseboard
- ◆ CPU: Supports COM Express Compact/Mini module using connector pin out Type 6
- ◆ Display Interfaces: 1 x DisplayPort connectors, 1 x LVDS 18/24-bit single or dual-channel (with PWM back light controller), 1 x VGA, 2 x DisplayPort pin-header
- ◆ Audio: Realtek ALC662 HD Audio codec (Line-in, Line-out, Mic)
- ◆ Expansion: 1 x LPC, 1 x PCIe x4, 1 x PCIe x16, 5 x PCIe x1, 2 x PCIe Mini (MINIPCE1 with mSATA support, colay with SATA\_4)
- ◆ Internal I/O Interface: 1 x PS2 KB/MS, 4 x SATA port, 1 x SD card socket
- ◆ External I/O Interface: 1 x Audio jack (Line-in, Line-out, Mic), 1 x DisplayPort connectors, 1 x HDMI, 1 x VGA, 1 x PS2 KB/MS, 2 x USB 2.0, 1 x RJ-45, 4 x USB 3.1 Gen 1 (5Gb/s)
- ◆ Front Audio: 2 x 5-pin pin header
- ◆ TPM: 1 x TPM (2x10 pin)
- ◆ 80 port: 2 x 7 segment display
- ◆ Front Panel: 1 x Front panel (2x7 pin, power LED, HDD LED, speaker/buzzer, power button, reset button)
- ◆ I<sup>2</sup>C: 1 x 4-pin wafer
- ◆ SMBus: 1 x 4-pin wafer
- ◆ Internal storage: EEPROM (supports EAPI R1.0)
- ◆ Watchdog Timer: Software programmable supports 1~255 sec system reset
- ◆ GPIO: 8-bit GPIO
- ◆ Power Supply: ATX / AT Power Supply 24+4 pins
- ◆ Fan Connector: 1 x 4-pin / 1 x 3-pin CPU module fan connector, 1 x 3-pin system fan connector by SIO
- ◆ Operating Temperature: -20°C ~ 60°C
- ◆ Storage Temperature: -30°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95 non-condensing
- ◆ Dimensions: 304.8 mm x 243.8 mm (12" x 9.6")
- ◆ Weight: GW:650g / NW:430g
- ◆ CE/FCC compliant

## Dimensions (Unit: mm)



## Packing List

1 x COM Express baseboard	1 x Mini jumper pack
2 x SATA cable	1 x QIG

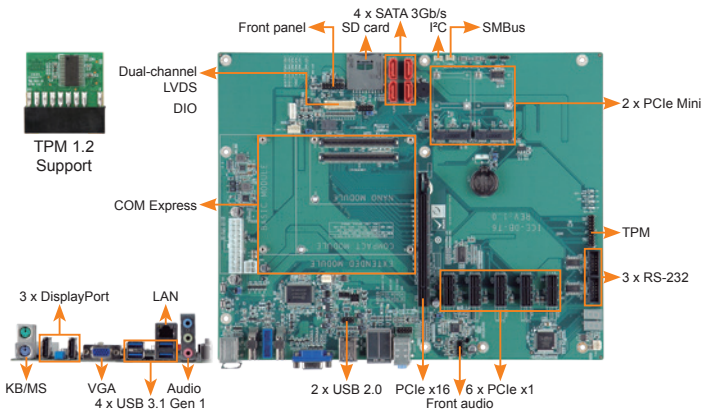
## Ordering Information

Part No.	Description
ICE-DB-T6R-R11	Baseboard for COM Express Type 6 Module COM.0 Rev. 2.1, support PICMG EAPI R1.0
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P



# ICE-DB-T6

Baseboard for COM Express Type 6 Module (for ICE-QM770 & ICE-CV-D25501/N26001)



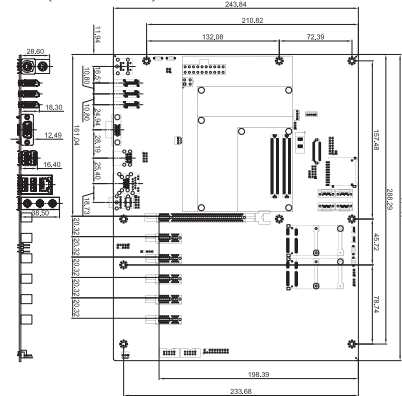
## Features

- ATX form factor baseboard for COM Express Rev. 2, Pin-out Type 6
- Supports one PCIe x16, six PCIe x1 and two PCIe Mini
- Supports smart battery charger

## Specifications

- ◆ Form Factor: ATX form factor baseboard
- ◆ CPU: Supports COM Express Compact/Mini module using connector pin out Type 6
- ◆ Display Interfaces: 1 x 18/24-bit single/dual-channel LVDS, 1 x VGA, 3 x DisplayPort (2 x real connectors, 1 x pin header)
- ◆ Super I/O: W83627DHG
- ◆ Audio: Realtek ALC892 HD Audio codec (Line-in, Line-out, Mic)
- ◆ Expansion: 1 x LPC, 2 x PCIe Mini (with USB), 1 x PCIe x16, 6 x PCIe x1
- ◆ Internal I/O Interface: 1 x PS2 KB/MS, 2 x RS-232 from SIO, 1 x SD, 2 x USB 2.0, 4 x SATA port, 2 x RS-232 from COM Express (only TX, RX and GND)
- ◆ External I/O Interface: 1 x VGA, 4 x USB 3.1 Gen 1 (5Gb/s), 1 x RJ-45, 3 x DisplayPort, 1 x Audio jack (Line-in, Line-out, Mic)
- ◆ Front Audio: 1 x Front audio (2x5 pin)
- ◆ TPM: 1 x TPM (2x10 pin)
- ◆ 80 port: 2 x 7 segment display
- ◆ Front Panel: 1 x Front panel (2x7 pin, power LED, HDD LED, speaker/buzzer, power button, reset button)
- ◆ I<sup>2</sup>C: 1 x 4-pin wafer
- ◆ SMBus: 1 x 4-pin wafer
- ◆ Watchdog Timer: Software programmable supports 1~255 sec. system reset
- ◆ GPIO: 8-bit GPIO (GPIO from iWDD co-lay SDO)
- ◆ Power Supply: ATX/AT power supply
- ◆ Battery: Supports smart battery charger connector
- ◆ Fan Connector: 1 x 4-pin / 1 x 3-pin CPU module fan connector, 1 x 3-pin system fan connector by SIO
- ◆ Operating Temperature: -10°C ~ 60°C
- ◆ Storage Temperature: -20°C ~ 70°C
- ◆ Operating Humidity: 5% ~ 95%, non-condensing
- ◆ Dimensions: 304.8 mm x 243.8 mm (12" x 9.6")
- ◆ Weight: GW:660g / NW:450g
- ◆ CE/FCC compliant

## Dimensions (Unit: mm)



## Packing List

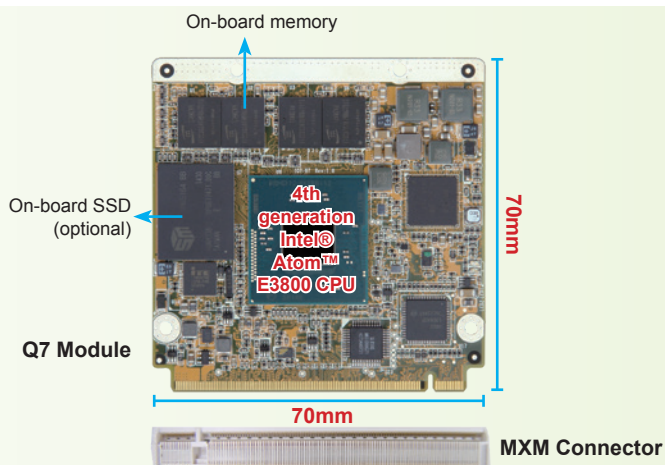
1 x COM Express baseboard	1 x Mini jumper pack
1 x Dual-port RS-232 cable	1 x Mini jumper pack
2 x SATA cable	1 x QIG

## Ordering Information

Part No.	Description
ICE-DB-T6-R10	Baseboard for COM Express Type 6 modules
19800-000082-RS	RS-232/422/485 cable, 14-pin to dual DB-9, 230mm, P=2.54
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

# Q7 Introduction

- The Qseven™ concept is an off-the-shelf, multi vendor, Single Board Computer that integrates all the core components of a common PC and is mounted onto an application specific carrier board.
- Qseven™ modules have a standardized form factor of 70mm x 70mm and have specified pinouts based on the high speed MXM system connector that has a standardized pinout regardless of the vendor.
- The Qseven™ module provides the functional requirements for an embedded application. These functions include, but are not limited to, graphics, sound, mass storage, network and multiple USB ports. A singleruggedized MXM connector provides the carrier board interface to carry all the I/O signals to and from the Qseven™ module.



## The New Module Standard

Compact, Square & Cost Efficient  
Module Concept for Ultra Mobile Applications

- Low Cost
- Low Power Consumption
- Legacy Free
- Fast Serial Interfaces

ETX, COM Express and Q7 Comparison Table			
Platform	ETX 3.0	COM Express Type II Basic Module	Q7
Size	95 x 114 mm	95 x 125 mm	70 x 70 mm
Connector	4 x 100-pin	2 x 220-pin	1 x 230-pin
Memory	1 x SO-DIMM	1 x SO-DIMM	on board memory
VGA	Yes	Yes	N/A
LCD	TTL or LVDS	Up to two single LVDS or Dual-channel LVDS	SDVO/HDMI/DP (Shared)
Expansion	PCI & ISA	PCI & PCI Express	PCI Express
Ethernet	10/100 Mbps	10/100/1000 Mbps	10/100/1000Mbps
USB	4	8	8
SATA	2 (ETX 3.0 only)	Up to 4 SATA	Up to 2 SATA
IDE	2CH	1CH	N/A
Audio	Mic-In/Line-in/Line-Out	AC97/HD interface	HD interface
Power	5V	12V	5V

## Defined Interfaces

- 4 x PCI Express x1 Lanes
- 2 x SATA
- 8 x USB 2.0
- 1 x 1000BaseT Ethernet
- 1 x SDIO 8 bit
- 2 x 24-bit LVDS
- SDVO / HDMI / DisplayPort (shared)
- HDA (High Definition Audio)
- I<sup>2</sup>C Bus
- LPC (Low Pin Count Bus)
- CAN Bus
- Fan Control
- Power Management Signals
- Battery Management
- 5V Power (TDP 12 Watt)
- Unique API for I<sup>2</sup>C Bus, Watchdog Timer and EPI (Embedded Panel Interface)
- Thermal Cooling Interface defined

## Typical Applications



Automation Controllers



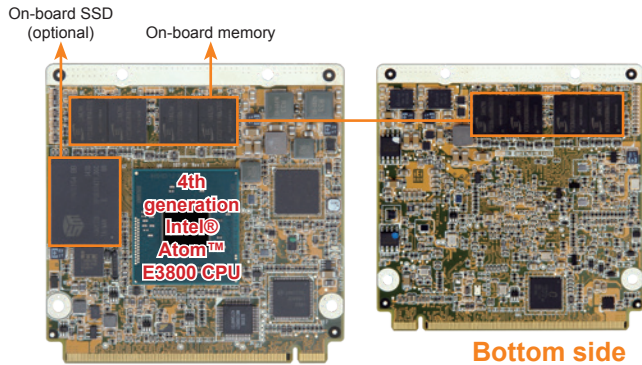
Mobile Devices



Measurement Systems

# iQ7-BT

Qseven Rev. 2.0 Module Supports 4th generation Intel® Atom™ Processor, LVDS, DDI, GbE, SATA 3Gb/s, USB 3.1 Gen 1 (5Gb/s), SDIO, Audio, -20°C~60°C and RoHS



## Features

- 22nm Intel® Atom™ on-board SoC supported
- Qseven connector pinout according to Qseven Specification Revision 2.0
- Supports 2 GB 1066/1333 MHz DDR3L memory (4 GB optional)
- Optional soldered-down 2 GB~64 GB SSD
- IEI One Key Recovery solution allows you to create rapid OS backup and recovery

## Specifications

- ◆ CPU
  - Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
  - Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
- ◆ Memory
  - 2 GB soldered-down 1066/1333 MHz DDR3L memory (up to 4 GB)
- ◆ BIOS
  - UEFI BIOS
- ◆ Graphics Engine
  - Intel® HD Graphics Gen 7 Engine with 4 execution units support DX11.1, OpenGL 4.2 and OpenCL 1.2
- ◆ Display Output
  - Dual independent display
  - 1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
  - 1 x DDI (DP up to 2560x1600@60Hz / HDMI up to 1920x1080@60Hz)
- ◆ Ethernet
  - Intel® I210 GbE controller
- ◆ Embedded Controller
  - ITE IT8528E/FX
- ◆ I/O Interface
  - 6 x USB 2.0 signal to baseboard
  - 1 x USB 3.1 Gen 1 (5Gb/s) signal to baseboard
- ◆ Storage
  - 2 x SATA 3Gb/s signal to baseboard
  - Optional soldered-down 4 GB SSD (SATA port 2)
- ◆ Audio
  - High-definition Audio interface to baseboard
- ◆ SMBus
  - Yes, to baseboard
- ◆ I<sup>2</sup>C
  - Yes, to baseboard
- ◆ LPC
  - Yes, to baseboard
- ◆ SDIO
  - One 8-bit SDIO 2.0, to baseboard
- ◆ SPI
  - Yes, to baseboard
- ◆ Serial Port
  - One serial port to baseboard (form EC)
- ◆ Expansion
  - 3 x PCIe x1 signal to baseboard
- ◆ Watchdog Timer
  - Software programmable supports 1~255 sec. system reset (form EC)
- ◆ Power Consumption
  - 3.3V@0.13A, 5V@0.13A, 12V@1.35A, 5VSB@0.12A (Intel® Atom™ E3845 CPU with 2 GB on-board memory)
- ◆ Operating Temperature
  - 20°C ~ 60°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions
  - 70 mm x 70 mm
- ◆ Weight
  - GW: 300g / NW: 150g
- ◆ CE/FCC compliant

## Packing List

1 x iQ7-BT single board computer	
1 x Heatsink	1 x QIG

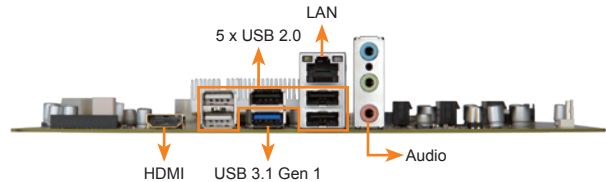
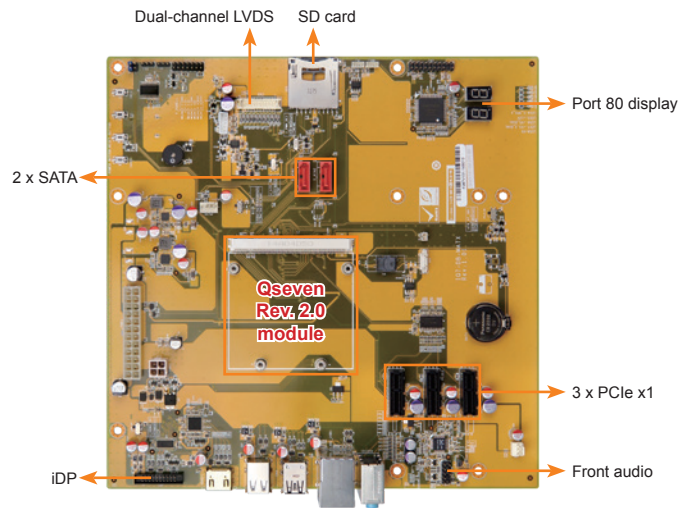
## Ordering Information

Part No.	Description
iQ7-BT-E38451-R10	Qseven Rev. 2.0 module supports Intel® Atom™ processor E3845 (quad core, 10W), on-board 2 GB DDR3L, LVDS, DDI, GbE, SATA 3Gb/s, SDIO, USB 3.1 Gen 1 (5Gb/s), Audio, and RoHS
iQ7-BT-E38251-R10	Qseven Rev. 2.0 module supports Intel® Atom™ processor E3825 (dual core, 6W), on-board 2 GB DDR3L, LVDS, DDI, GbE, SATA 3Gb/s, SDIO, USB 3.1 Gen 1 (5Gb/s), Audio, and RoHS
iQ7-DB-MATX-R10	Baseboard for Qseven Rev. 2.0 module

Note: Models with other CPUs not listed in the table are requested by MOQ - 100 pcs/lot.

# iQ7-DB-MATX

Baseboard for Qseven Rev. 2.0 Module



## Features

- mATX form factor baseboard for Qseven Rev. 2.0 module
- Supports three PCIe x1
- 18/24-bit dual-channel LVDS

## Specifications

- ◆ COM Express Type
  - mATX form factor baseboard for Qseven Rev. 2.0 module
- ◆ Display Interfaces
  - 1 x LVDS
  - 1 x HDMI
  - 1 x iDP
- ◆ Internal I/O Interface
  - 1 x LPC
  - 1 x SD card socket
  - 2 x SATA port
  - 3 x PCIe x1
- ◆ External I/O Interface
  - 1 x Audio jack (Line-in, Line-out, Mic)
  - 1 x HDMI
  - 1 x USB 3.1 Gen 1 (5Gb/s)
  - 5 x USB 2.0
  - 1 x RJ-45
- ◆ Front Audio
  - 1 x Front audio (2x5 pin)
- ◆ TPM
  - 1 x TPM (2x10 pin)
- ◆ Port 80 Display
  - 2 x 7-segment display
- ◆ Front Panel
  - 1 x Front panel (2x7 pin, power LED, HDD LED, buzzer speaker, power button, reset button)
- ◆ I<sup>2</sup>C
  - 3 x I<sup>2</sup>C (1x4 pin)
- ◆ SMBus
  - 1 x SMBus (1x4 pin)
- ◆ Watchdog Timer
  - Software programmable, supports 1~255 sec. system reset
- ◆ Power Supply
  - ATX power supply, ATX/AT mode support
- ◆ Fan Connector
  - 1 x CPU smart fan (1x4 pin)
  - 1 x System fan (1x3 pin)
- ◆ Temperature
  - 40°C ~ 85°C
- ◆ Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions
  - 243.8 mm x 243.8 mm
- ◆ CE/FCC compliant

## Packing List

1 x Qseven® baseboard
1 x QIG

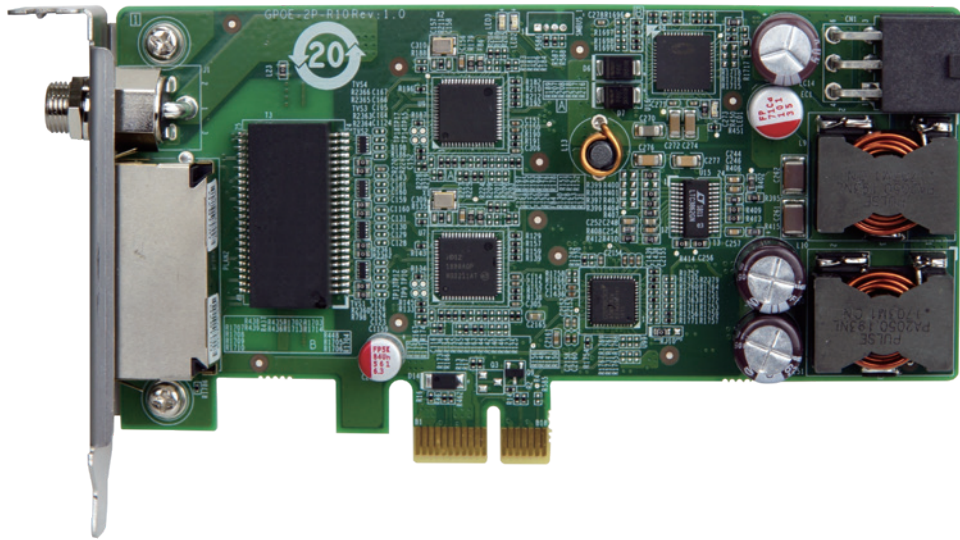
## Ordering Information

Part No.	Description
iQ7-DB-MATX-R10	Baseboard for Qseven Rev. 2.0 module
32102-000100-200-RS	SATA power cable, MOLEX 5264-4P to SATA15P

# GPOE-2P

PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS

**New**



## Specifications

- ◆ Interface
  - PCI Express® x1
- ◆ Ethernet
  - Intel® I211AT controller
  - 9kB jumbo frame
  - IEEE 802.3az, IEEE1588
- ◆ Power Input
  - 12~24V DC input
  - 1 x Internal DC input (1x4 pin)
  - 1 x External DC Jack (Φ2.1/Φ5.5)
  - \*\*Caution! Choose one input only at a time**
- ◆ PoE Capability
  - IEEE 802.3at
  - 30W / 52V DC per port
- ◆ Operating Temperature
  - 0°C ~ 60°C
- ◆ Storage Temperature
  - 10°C ~ 70°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions
  - 130 mm x 65 mm
- ◆ Weight
  - 110g
- ◆ CE/FCC compliant

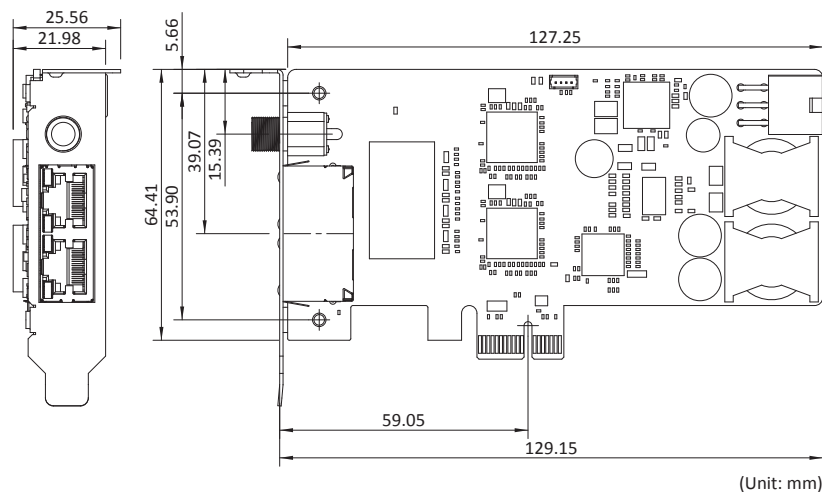
## Features

- PCI Express® x1 compliant
- Support IEEE 802.3at for PoE (Power over Ethernet) with 30 watts per port
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V DC input power

## Packing List

- 1 x GPOE-2P card
- 1 x QIG

## Dimensions



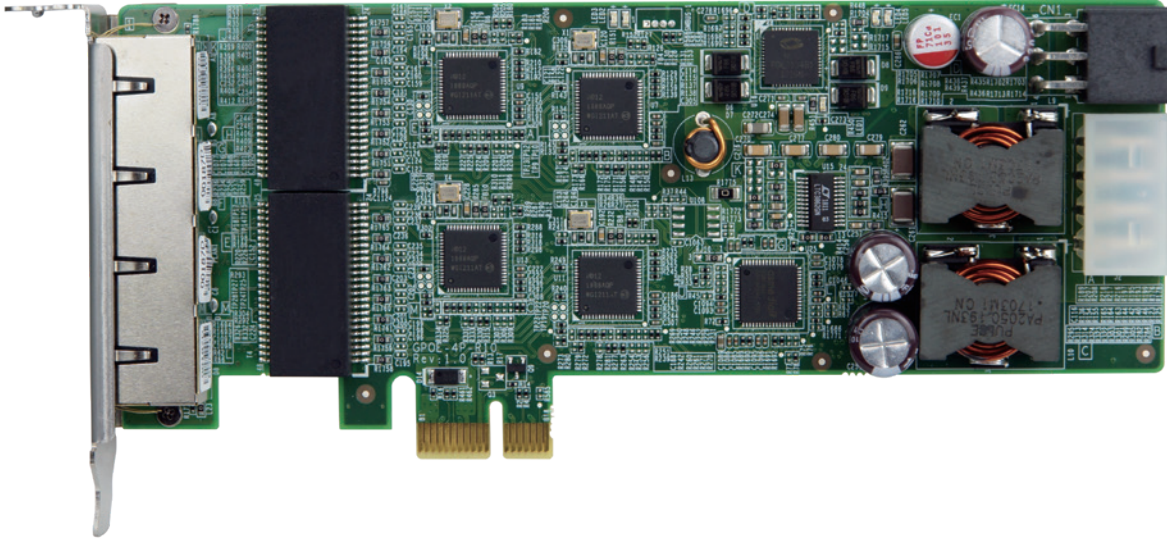
## Ordering Information

Part No.	Description
GPOE-2P-R10	PCI Express Power over Ethernet card, 2-port 1000 Base(T), 802.3at compliant, low profile, RoHS
63040-010090-120-RS	Power adapter, FSP, FSP090-DIEBN2, 9NA0904712, Vin:90~264VAC, 90W, Plug=7.5mm, Cable=1500mm, Erp (no load 0.5W), Vout:19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS
63040-010065-200-RS	Power adapter, FSP, FSP065-REBN2, 9NA0654709, Vin:90~264VAC, 65W, Dim:46.3x108.3x30mm, Plug=7.5mm, Cable=1500mm, Erp (no load 0.1W), Vout:19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS

# GPOE-4P

PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant, low profile, RoHS

**New**



## Specifications

- ◆ Interface
  - PCI Express® x1
- ◆ Ethernet
  - Intel® I211-AT controller
  - 9kB jumbo frame
  - IEEE 802.3az, IEEE1588
- ◆ Power Input
  - 12~24V DC input
  - 1 x Internal DC input (1x4 pin)
  - 1 x Internal DC input (2x3 pin)
  - \*\*Caution! Choose one input only at a time**
- ◆ PoE Capability
  - Standard mode: IEEE 802.3af with 15.4W / 52V per port
  - Dual port mode: IEEE 802.3at with 30W / 52V per port
- ◆ Operating Temperature
  - 0°C ~ 60°C
- ◆ Storage Temperature
  - 10°C ~ 70°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions
  - 160 mm x 65 mm
- ◆ Weight
  - 110g
- ◆ CE/FCC compliant

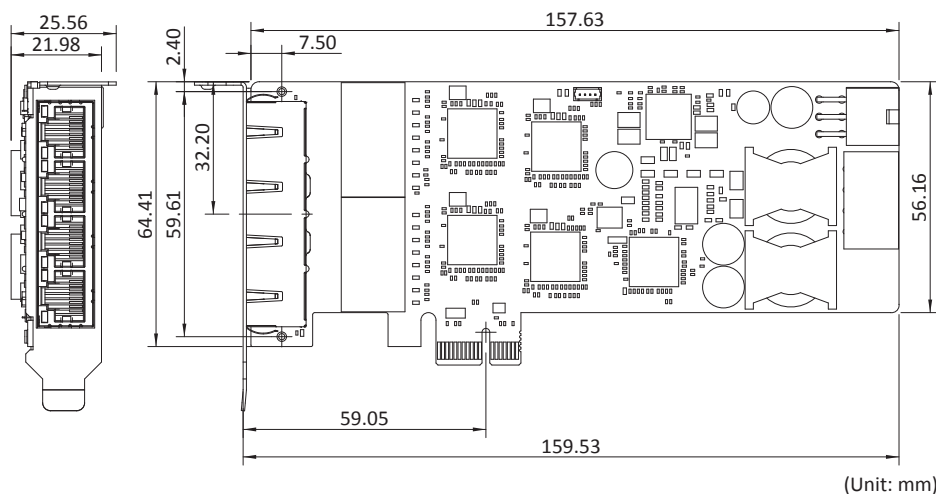
## Features

- PCI Express® x1 compliant
- Support for total 60 watts under full load
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12V~24V DC input power

## Packing List

- 1 x GPOE-4P card
- 1 x QIG

## Dimensions

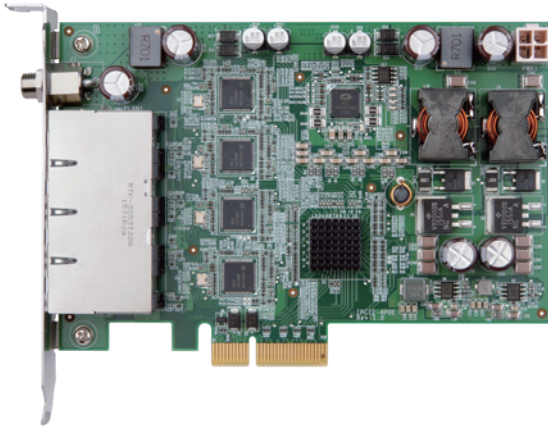


## Ordering Information

Part No.	Description
GPOE-4P-R10	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant, low profile, RoHS
32102-045800-100-RS	WIRE cable, power cable, 2, 300MM, 20AWG, (A) DC JACK 5.5*2.1+NUT+WASHER (Smcts:655-353), (B) TKP: H6657R1-06-B-03 P=4.2, Polywell, RoHS

# IPCIE-4POE

PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant



## Specifications

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

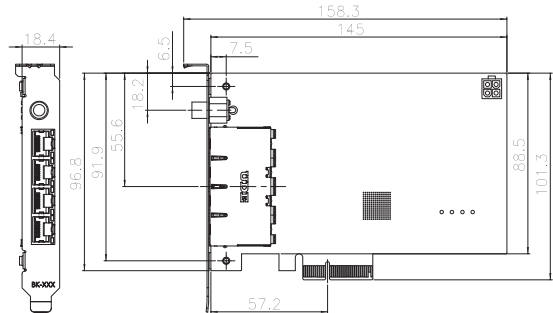
## Packing List

- 1 x IPCIE-4POE card
- 1 x QIG

## Features

- PCI Express® x4 compliant
- Support for IEEE 802.3af for PoE (Power over Ethernet) with 15.4 watts per port
- Support link aggregation/jumbo frames (9 Kbyte)
- Supports 12~24 AT/ATX DC input power

## Dimensions (mm)

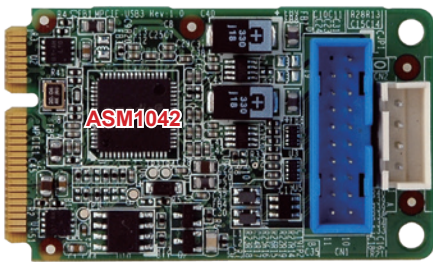


## Ordering Information

Part No.	Description
IPCIE-4POE-R10	PCI Express Power over Ethernet card, 4-port 1000 Base(T), 802.3af compliant
63040-010090-120-RS	Adapter power, FSP, FSP090-DIEBN2, 9NA0904712, Vin: 90~264VAC, 90W, Plug=7.5mm, Cable=1500mm, Erp (no load 0.5W), Vout: 19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS
63040-010065-200-RS	Adapter power, FSP, FSP065-REBN2, 9NA0654709, Vin: 90~264VAC, 65W, Dim: 46.3x108.3x30mm, Plug=7.5mm, Cable=1500mm, Erp (no load 0.1W), Vout: 19VDC, Φ2.1/Φ5.5/lock, CCL, RoHS

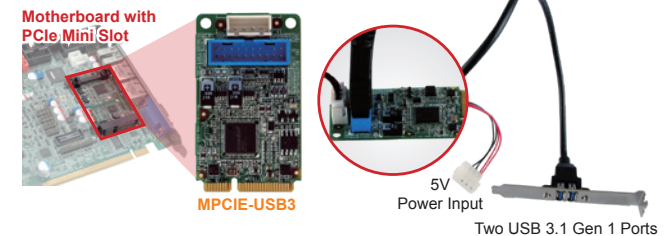
# MPCIE-USB3

PCIe Mini USB 3.1 Gen 1 (5Gb/s) Adapter Card, RoHS



## IEI USB 3.1 Gen 1 (5Gb/s) Expanded Solution

The MPCIE is applied to add additional super speed USB 3.1 Gen 1 (5Gb/s) ports for the motherboard with a PCIe Mini slot.



## Specifications

- ◆ Form Factor
  - PCI Express Mini card
- ◆ USB 3.1 Gen 1 (5Gb/s) Controller
  - Asmedia ASM1042A
- ◆ Internal Connector
  - 1 x 20-pin (2x10) box header
- ◆ Power Jack
  - 1 x 4-pin box header
- ◆ Compatible OS
  - Windows® XP/Server 2003/Server 2008/Vista/7/8.1/10
  - Linux kernel version 2.6.32 above
- ◆ Operating Temperature
  - 10°C ~ 60°C
- ◆ Operating Humidity
  - 5% ~ 95%, non-condensing
- ◆ Dimensions (LxW)
  - 50 mm x 30 mm
- ◆ Weight
  - 70g
- ◆ CE/FCC compliant

## Packing List

- 1 x MPCIE-USB3 PCIe Mini USB 3.1 Gen 1 (5Gb/s) adapter card
- 1 x Dual USB 3.1 Gen 1 (5Gb/s) type A port cable with bracket
- 1 x Power cable
- 1 x QIG

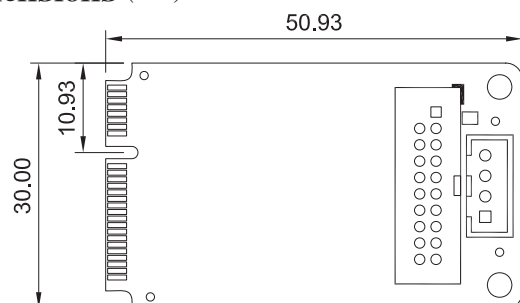
## Ordering Information

Part No.	Description
MPCIE-USB3-R11	PCIe Mini USB 3.1 Gen 1 (5Gb/s) adapter card, RoHS
19800-010500-200-RS	Dual USB 3.1 Gen 1 (5Gb/s) type A port cable with bracket

## Features

- Supports two external USB 3.1 Gen 1 (5Gb/s) type A ports
- USB 3.1 Gen 1 (5Gb/s) provides up to 5Gbps of transferring rate
- Backward compatible with USB 2.0 and USB 1.0/1.1 devices
- Fully compliant with USB 3.1 Gen 1 (5Gb/s) rev 1.0 specifications and Intel® xHCI rev 0.96 specifications, with transfer rates up to 5Gbps
- Compliant with PCI Express Mini specification 1.2

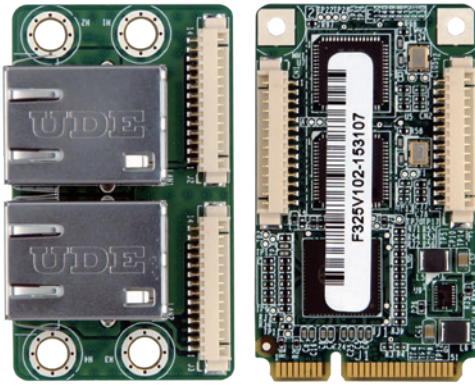
## Dimensions (mm)





# MPCIE-DLAN-R10

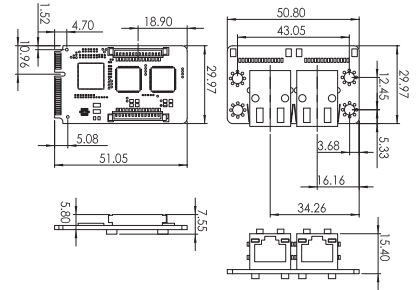
PCI Express Mini Dual Intel® GbE LAN Module, Full Size, RoHS



## Specifications

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

## Dimensions (mm)



## Features

- Support dual GbE LAN by Intel® I210-IT
- Compliant with PCI Express Mini specification 1.2

## Packing List

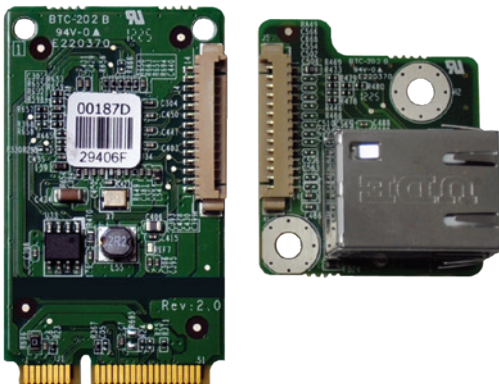
1 x MPCIE-DLAN module	2 x Flat cable (pitch=1.25mm), 340mm length	1 x QIG
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## Ordering Information

Part No.	Description
MPCIE-DLAN-R10	PCI Express Mini dual Intel® GbE LAN module, full size, RoHS

# MPCIE-LAN-R10

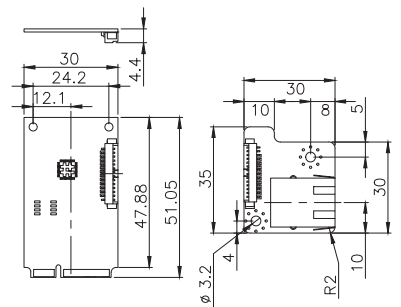
PCI Express Mini GbE LAN Module, Full Size, RoHS



## Specifications

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

## Dimensions (mm)



## Features

- Support one GbE LAN by RTL8111E
- Compliant with PCI Express Mini specification 1.2

## Packing List

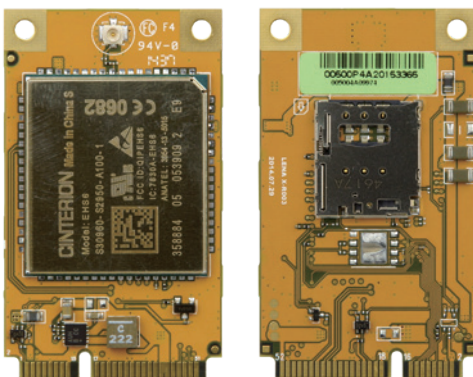
1 x MPCIE-LAN module	1 x Flat cable (pitch=1.25mm), 340mm length	1 x QIG
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## Ordering Information

Part No.	Description
MPCIE-LAN-R10	PCI Express Mini GbE LAN module, full size, RoHS

# MPCIE-3G-R20

PCI Express Mini 3G Adapter Card, RoHS



## Specifications

- ◆ Form Factor
  - PCI Express Mini card
  - Antenna 50Ohms. Main GSM/UMTS antenna
- ◆ Frequency Bands
  - GSM/GPRS/EDGE: 850/900/1800/1900 GPRS/EDGE Class12
  - UMTS/HSPA+: Dual band UMTS 800/850/900/1900/2100 MHz

- ◆ USB
  - USB 2.0 High Speed (480Mbit/s) device interface
- ◆ Compatible OS
  - Windows®8, Windows®7, Windows EC, Linux, Android
- ◆ Operating Temperature
  - Normal operation: -30°C to +85°C
  - Restricted operation: -40°C to +95°C
- ◆ Dimensions (W x D x H)
  - 51.0 mm x 30.0 mm x 4.75 mm

## Packing List

1 x PCI Express Mini 3G adapter card
--------------------------------------

## Ordering Information

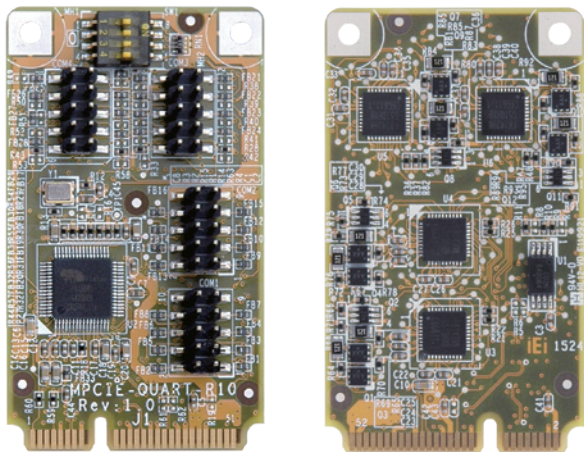
Part No.	Description
MPCIE-3G-R20	PCI Express Mini 3G adapter card, RoHS
32501-000705-100-RS	RF antenna cable
32503-000100-100-RS	GSM antenna cable

## Features

- Real time clock: Timer functions via AT commands
- Phonebook: SIM and phone
- TTY/CTM support: Integrated CTM modem

# MPCIE-UART-KIT01-R10

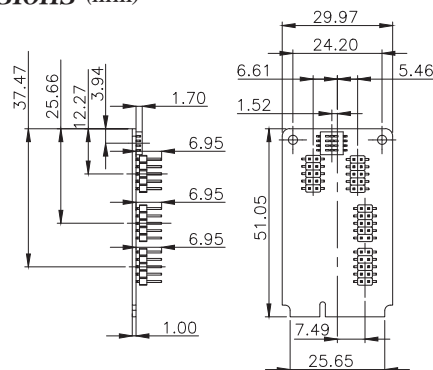
PCI Express Mini Card Supports  
Quad-port RS-232/422/485, Full Size,  
RoHS



## Features

- PCI Express Mini supports quad-port RS-232/422/485
- 128 bytes transmit/receive FIFO
- High-speed 16C550/16C650/16C750/16C850 compatible UARTs
- Baud rate supports 115.2K, max. up to 1.5M

## Dimensions (mm)



## Specifications

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

## Packing List

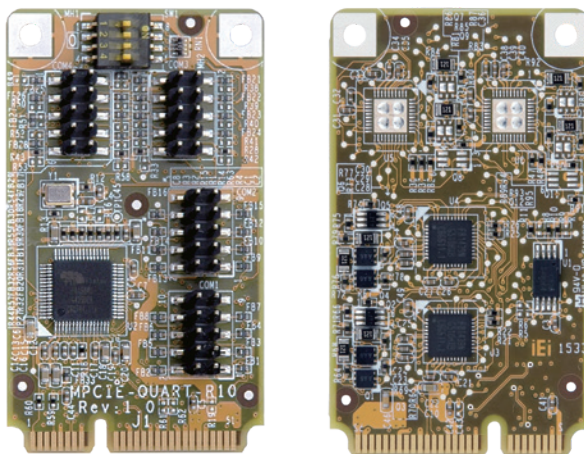
1 x MPCIE-UART-KIT01-R10 module	
4 x D-SUB9 male cable	1 x QIG

## Ordering Information

Part No.	Description
MPCIE-UART-KIT01-R10	PCI Express Mini card supports quad-port RS-232/422/485, full size, RoHS

# MPCIE-UART-KIT02-R10

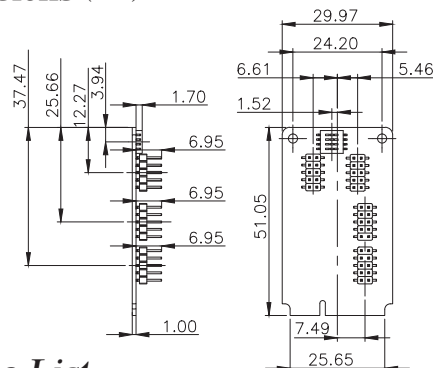
PCI Express Mini Card Supports  
Dual-port RS-232/422/485, 16-bit  
GPIO, Full Size, RoHS



## Features

- PCI Express Mini supports dual RS-232/422/485 and 16-bit GPIO ports
- 128 bytes transmit/receive FIFO
- High-speed 16C550/16C650/16C750/16C850 compatible UARTs
- Baud rate supports 115.2K, max. up to 1.5M
- All GPIO supports digit IO for input/output control, output data control, input status
- Support High/Low Level/Pulse, Open Drain/Push Pull function selection

## Dimensions (mm)



## Specifications

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

## Packing List

1 x MPCIE-UART-KIT02-R10 module	
2 x D-SUB 9 male cable	1 x QIG

## Ordering Information

Part No.	Description
MPCIE-UART-KIT02-R10	PCI Express Mini card supports dual-port RS-232/422/485, 16-bit GPIO, full size, RoHS

# Wireless LAN Module



## EMB-WIFI-KIT

PCIe Mini card wireless LAN module kit

### Features

- Half size PCIe Mini card form factor
- High speed wireless connection up to 433.3Mbps transmit/receive PHY rate using 80MHz bandwidth
- Low power consumption and high performance
- Fully qualified Bluetooth 4.0
- Solid design with external antenna diversity

### Ordering Information

Part No.	Description
EMB-WIFI-KIT01-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 250mm RF cable, 2 x Antenna, RoHS
EMB-WIFI-KIT11-R20	1T1R wifi module kit for embedded system, IEEE802.11a/b/g/n/ac WiFi with Bluetooth 4.0/3.0+HS, 1 x wifi module, 2 x 400mm RF cable, 2 x Antenna, RoHS



## WMPCIE-V02-R10

PCIe Mini card wireless LAN module

### Features

- PCIe Mini card form factor
- High speed wireless connection up to 433.3Mbps transmit/receive PHY rate using 80 MHz bandwidth
- Solid design with external antenna diversity
- Low power consumption and high performance
- Enhanced wireless security
- Fully qualified Bluetooth 4.0 and 3.0 + High speed system

### Ordering Information

Part No.	Description
WMPCIE-V02-R10	IEEE802.11a/b/g/n/ac wireless with Bluetooth 4.0/3.0 + HS PCIe Mini module with Realtek RTL8821AE, RoHS
32501-001000-200-RS	RF cable; 300MM; 28AWG; (A) SMA connector (B) MHF20278-11R-13; RoHS
32505-000100-100-RS	2 dBi 109mm antenna

### Specifications

Model Name	EMB-WIFI-KIT <b>New</b>
Standard	IEEE 802.11a/b/g/n/ac, Wi-Fi compliant / Bluetooth4.0 Standard
Major chipset	Realtek RTL8821AE
Antenna	2x standard U.FL Connector
Frequency range	Wi-Fi: 2.4 GHz, BT: 2402MHz~2483MHz
Modulation	Wi-Fi: 802.11a/g/n/ac: OFDM 802.11b: CCK(11, 5.5Mbps), DQPSK(2Mbps), BPSK(1Mbps)
Receive Sensitivity	Wi-Fi: 802.11a: less than -65 dBm (54M) 802.11b: less than -76 dBm (11M) 802.11g: less than -65 dBm (54M) 802.11n @2.4GHz: less than -64 dBm (HT20 MCS7) 802.11n @2.4GHz: less than -61 dBm (HT40 MCS7) 802.11n @5GHz: less than -64 dBm (HT20 MCS7) 802.11n @5GHz: less than -61 dBm (HT40 MCS7) 802.11ac @5GHz: less than -51 dBm (VHT80 MCS9) BT: BER < 0.1% (Anritsu 8852B Tx -70 dBm)
Driver support	Windows 7/8, Linux kernel 3.18
Temperature	00~700C
Dimensions	29.85mm x 26.65mm x 1.5 mm
Weight	NW: 3.28g

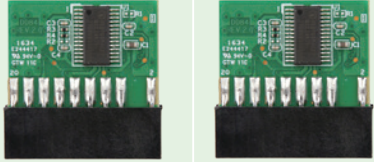

### Specifications

Model Name	WMPCIE-V02-R10
Standards	IEEE 802.11a/b/g/n/ac Wi-Fi with Bluetooth 4.0/3.0 + HS (Wi-Fi:PCI-E, BT:USB)
Interface	PCIe Mini card
Connectors	2XU.FL(I-PEX) antenna connectors
Controller Chip	Realtek RTL8821AE
Frequency Range	Wi-Fi: 2.4/5GHz, BT: 2402 MHz~2483 MHz
Modulation Type	Wi-Fi: 802.11a/g/n/ac: OFDM 802.11b: CCK, DQPSK, BPSK BT: Header GFSK Payload 2M: 4-DQPSK Payload 3M: 8DPSK
Supported OS	Windows 7/8/10
Receiver Sensitivity	Wi-Fi: 802.11a: less than -65 dBm (54M) 802.11b: less than -76 dBm (11M) 802.11g: less than -65 dBm (54M) 802.11n@2.4GHz: less than -64 dBm (HT20 MCS7) 802.11n@5GHz: less than -64 dBm (HT20 MCS7) 802.11ac@5GHz: less than -51 dBm (VHT80 MCS9) BT: BER < 0.1% (Anritsu 8852B Tx -70 dBm)
Temperature	Operating: 0°C ~ 70°C Storage: -40°C ~ 85°C
Humidity	5% ~ 95%, non-condensing
Dimensions	29.85mm x 26.65mm
Weight	NW: 3.28g
Compliance Certifications	FCC, CE

# IEI Trusted Platform Module (TPM)

Hardware-based security solution for data protection and reliable authentication via TPM that stores key, passwords and digital certificates.

## H/W Features

Solution	<b>Infineon</b>
	<b>SLB9660 TT1.2</b> <b>SLB9665TT2.0</b>
Features	
Secure Startup	Root of Trust Measurement of early boot devices
Anti H/W Attack	Sensors and active shield
TSS API Support	MS-CAPI/PKCS#11, #12
H/W Certification	
Management Tool Function	1. TPM management 2. File & Folder En/De-cryption 3. Personal secure drive 4. Secure Email 5. Key transferring 6. Security policy configuration
Market Segment	Complete TPM1.2/2.0 function
TCG Specification	TCG 1.2/2.0 compliant trusted platform module
Interface	Low pin count
Software Structure	TCG software stack 1.2 complaint
Cryptographic Accelerator	HAS-1/RSA algorithm

## IEI SBC with TPM support

Form factor	Model name	Form factor	Model name
PICMG1.3	PCIE-Q170-i2*	Micro-ATX	IMB-H110*
	SPCIE-C236-i2*		IMB-Q870-i2
	SPCIE-C2260-i2		IMB-H810-i2
	PCIE-H810		IMB-Q770
	PCIE-Q670		IMB-Q670
PICMG1.0	WSB-H810	Mini-ITX	IMB-H610A/H610B
	WSB-H610		KINO-DH310
Half-size PCIe	PICOe-B650		tKINO-BW
	PICOe-HM650		KINO-DBT
Half-size PCISA	PCISA-BT		KINO-SE/KBN-i2
ATX	IMBA-C2360-i2*		KINO-DH810
	IMBA-Q170-i2*		eKINO-BT
	IMBA-H110*		KINO-ABT-i2
	IMBA-BDE		KINO-AQ870
	IMBA-H810		KINO-DQM871-i1
	IMBA-C2260-i2		KINO-QM770
	IMBA-Q870-i2		KINO-DH610
	IMBA-H610		KINO-AH612
EPIC SBC	IMBA-Q670		
	NANO-QM871		
	NANO-QM770		
	NANO-HM650		

\* TPM 2.0 is supported by these models.

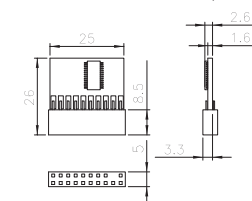
## Pin Assignment

Pin	Singnal	Pin	Singnal	Pin	Singnal	Pin	Singnal
1	LCLK	6	VCC5	11	LAD0#	16	SERIRQ
2	GND	7	LAD3#	12	GND	17	GND
3	LFRAME#	8	LAD2#	13	SCL	18	CLKRUN#
4	KEYWAY	9	VCC3	14	SDA	19	LPCPD#
5	LRST#	10	LAD1#	15	SB3V	20	LDRQ#

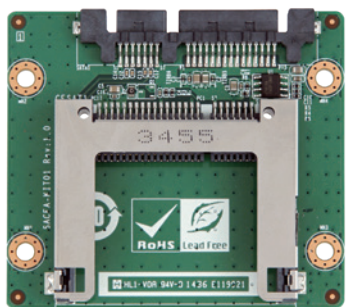
## Ordering Information

Model Name	Description
TPM-IN01-R20	20-pin Infineon TPM1.2 module, software management tool, firmware v4.4
TPM-IN02-R20	20-pin Infineon TPM2.0 module, software management tool, firmware v5.5

## Dimensions (mm)



# SATA to CFast™ Converter Board



32801-000100-300-RS

**SACFA-KIT01-R10**  
SATA to CFast™ converter board

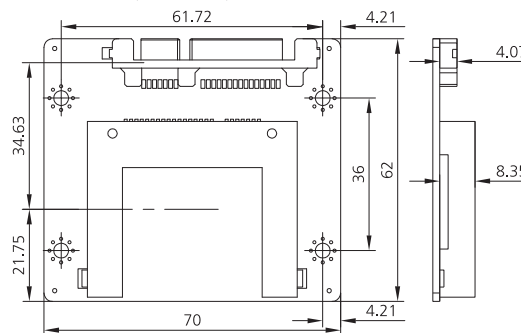
## Features

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

## Packing List

1 x SACFA-KIT01-R10	1 x QIG
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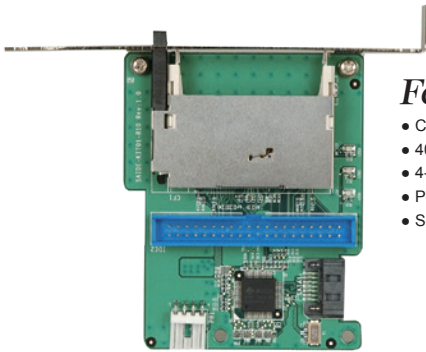
## Dimensions (Unit: mm)



## Ordering Information

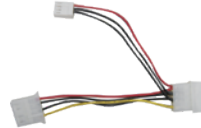
Part No.	Description
SACFA-KIT01-R10	SATA to 24-pin CFast™ socket converter board
32000-080700-RS	SATA 7+15P female to SATA 7P / PH 5.08 4P cable, L=200mm/100mm
32801-000100-100-RS	SATA 7+15P female to SATA 7P / PH 2.5 4P cable, L=200mm/200mm
32801-000201-100-RS	SATA 7+15P female to SATA 7P / PH 2.0 2P cable, L=150mm/150mm

# SATA to IDE/CF Type II Converter Board



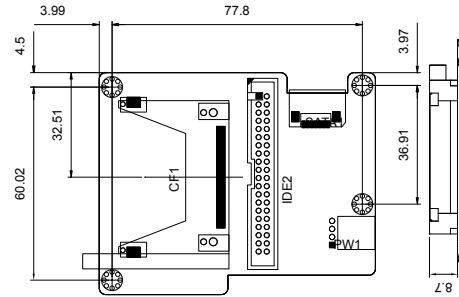
### Features

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



32100-064401-RS

### Dimensions (Unit: mm)



## SAIDE-KIT01-R10

SATA to IDE/CF converter board

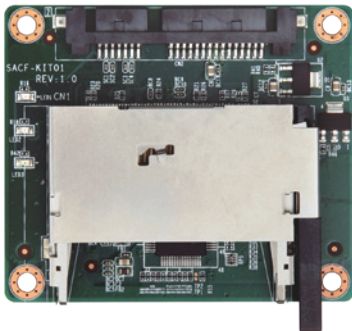
### Packing List

1 x SAIDE-KIT01-R10	
1 x Power cable	1 x QIG

### Ordering Information

Part No.	Description
SAIDE-KIT01-R10	SATA to 40-pin IDE/CF socket converter board with bracket
32000-062800-RS	SATA cable
32100-064401-RS	Power cable
32102-000100-200-RS	SATA power cable

# SATA to CF Type II Converter Board



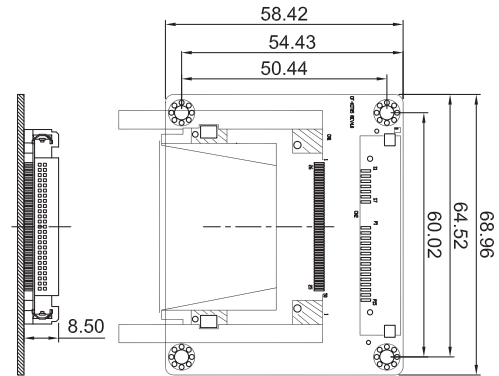
### Features

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



32801-000100-300-RS

### Dimensions (Unit: mm)



## SACF-KIT01-R10

SATA to CF converter board

### Packing List

1 x SACF-KIT01-R10	
1 x SATA with power cable kit	1 x QIG

### Ordering Information

Part No.	Description
SACF-KIT01-R10	SATA to 50-pin CF socket converter board

# IDE/CF Type II Converter Board



### Features

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

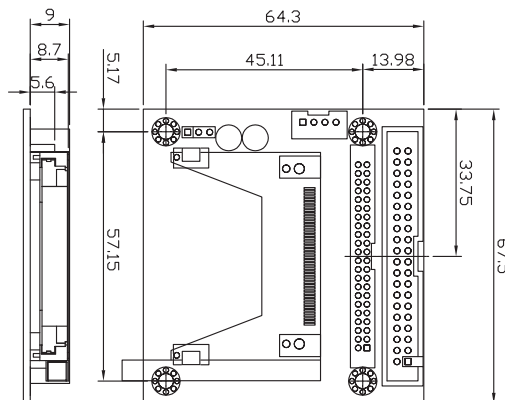
### IEI CF Solution



iCF1000 Industrial standard grade

iCF1000 Wide Temp. grade

### Dimensions (Unit: mm)



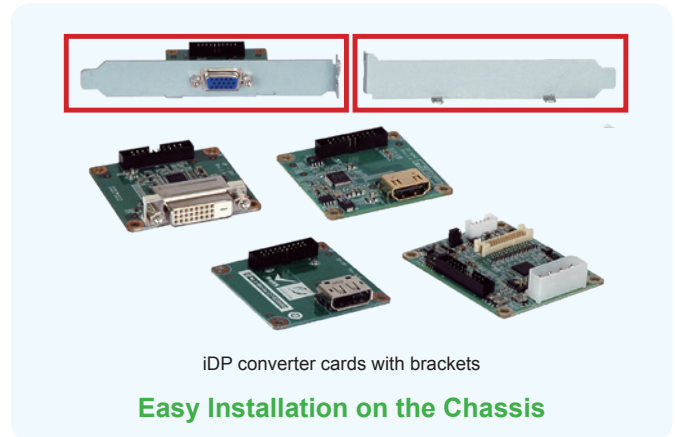
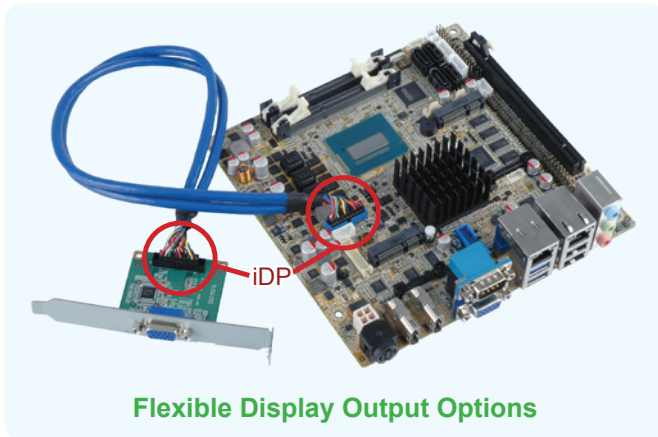
## CF-KIT04-R10

IDE to CF Type II converter board with master/slave mode selection

# IEI iDP Introduction

## iDP (IEI Internal DisplayPort)

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

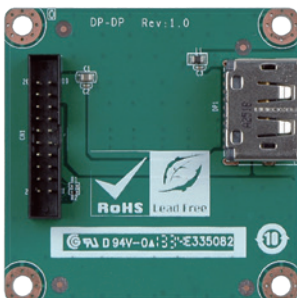


### iDP Supported Models

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

## DP-DP-R10

DisplayPort Expansion Board (for IEI iDP Connector), RoHS



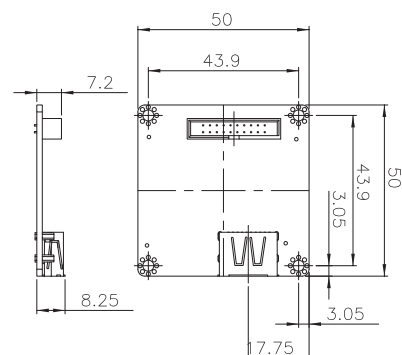
### Features

- DisplayPort to DisplayPort output
- Resolution support up to 1920x1200

### Specifications

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

### Dimensions (mm)



### Packing List

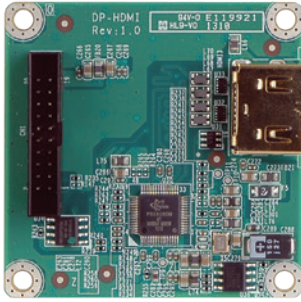
1 x DP-DP expansion board	1 x QIG
1 x IEI iDP connector cable, 450 mm length	

### Ordering Information

Part No.	Description
DP-DP-R10	DisplayPort expansion board (for IEI iDP connector), RoHS

# DP-HDMI-R10

DisplayPort to HDMI 1.3a Converter Board (for I/EI iDP connector), RoHS



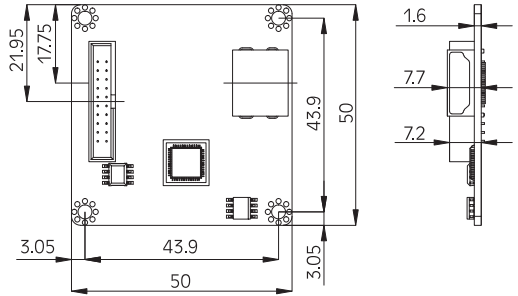
## Features

- DisplayPort to HDMI 1.3a output
- Support up to 1920x1200 resolution

## Specifications

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

## Dimensions (mm)



## Packing List

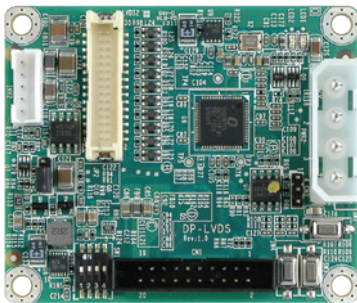
1 x DP-HDMI converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

## Ordering Information

Part No.	Description
DP-HDMI-R10	DisplayPort to HDMI 1.3a converter board (for I/EI iDP connector), RoHS

# DP-LVDS-R10

DisplayPort to 24-bit Dual-channel LVDS Converter Board (for I/EI iDP Connector), RoHS



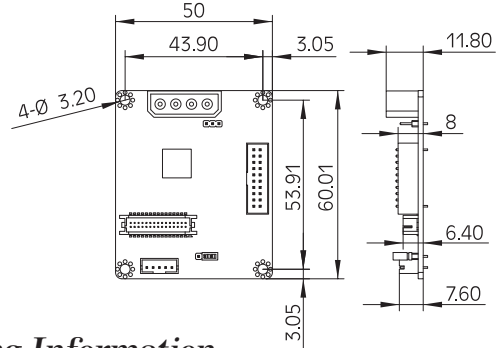
## Features

- DisplayPort to LVDS output
- Supports 24-bit dual-channel up to 1920x1200

## Specifications

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

## Dimensions (mm)



## Packing List

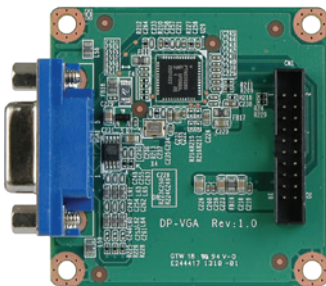
1 x DP-LVDS converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

## Ordering Information

Part No.	Description
DP-LVDS-R10	DisplayPort to 24-bit dual-channel LVDS converter board (for I/EI iDP connector), RoHS

# DP-VGA-R10

DisplayPort to VGA Converter Board (for I/EI iDP Connector), RoHS



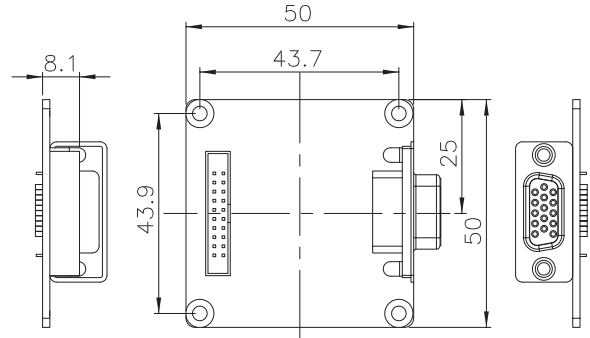
## Features

- DisplayPort to VGA output
- Support up to 1920x1200 resolution

## Specifications

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

## Dimensions (mm)



## Packing List

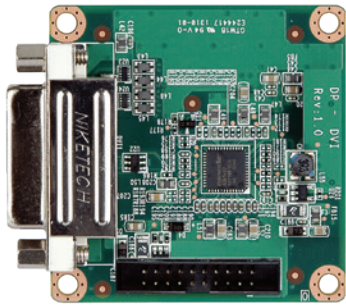
1 x DP-VGA converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

## Ordering Information

Part No.	Description
DP-VGA-R10	DisplayPort to VGA converter board (for I/EI iDP connector), RoHS

# DP-DVI-R10

DisplayPort to DVI Converter Board (for I/EI iDP Connector), RoHS



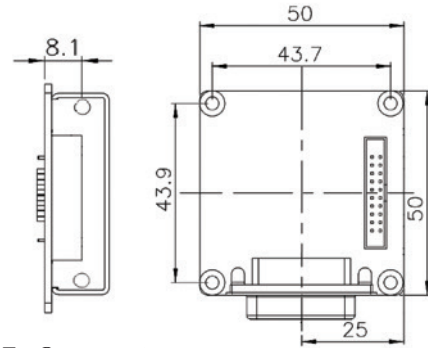
### Features

- DisplayPort to DVI output
- Support up to 1920x1200 resolution

### Specifications

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

### Dimensions (mm)



### Packing List

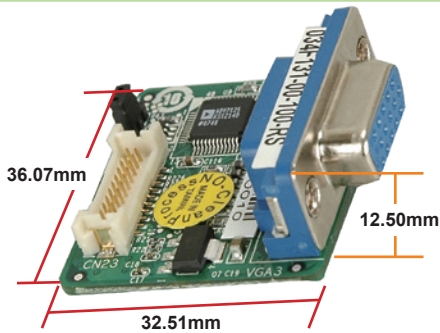
1 x DP-DVI converter board	1 x QIG
1 x Internal DisplayPort cable, 450 mm length	

### Ordering Information

Part No.	Description
DP-DVI-R10	DisplayPort to DVI converter board (for I/EI iDP connector), RoHS

# LVDS-VGA-R10

Single-channel LVDS to VGA Converter Board (Support I/EI Model Only)



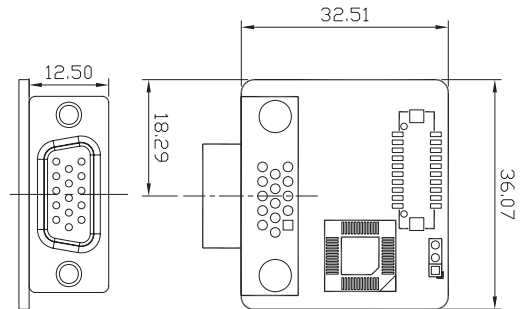
### Features

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

### Packing List

1 x LVDS to VGA converter board
1 x QIG

### Dimensions (mm)

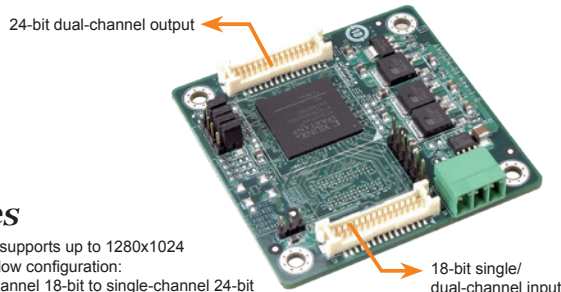


### Ordering Information

Part No.	Description
LVDS-VGA-R10	18-bit LVDS to VGA converter board
32600-112300-RS	30-pin LVDS connecting cable
32602-026400-100-RS	20-pin LVDS connecting cable

# LVDS24-01

18-bit to 24-bit LVDS Converter Board



### Features

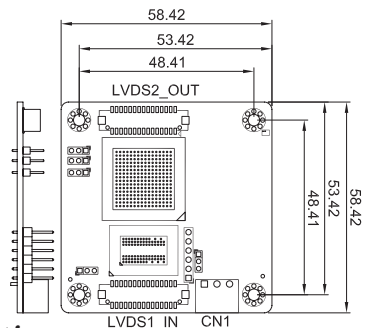
- Resolution supports up to 1280x1024
- Support below configuration:
  - » Single-channel 18-bit to single-channel 24-bit
  - » Single-channel 18-bit to dual-channel 24-bit
  - » Dual-channel 18-bit to dual-channel 24-bit
- \* Note: The module does not support dual-channel 18-bit to single-channel 24-bit conversion.

### Packing List

1 x 18-bit to 24-bit LVDS converter board
1 x Power cable
1 x QIG



### Dimensions (mm)



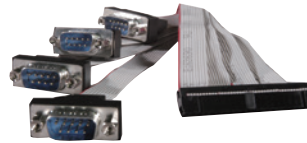
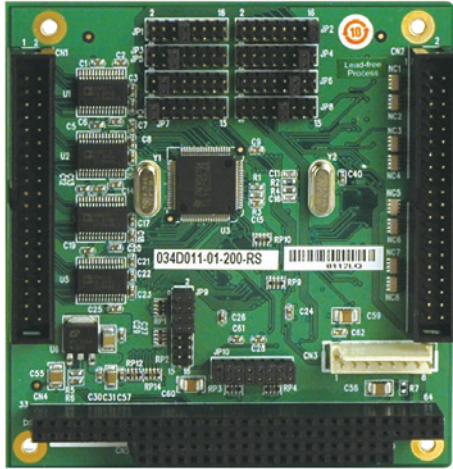
### Ordering Information

Part No.	Description
LVDS24-01-R10	18-bit to 24-bit LVDS converter board
32602-007900-100-RS	Single-channel 18-bit 20-pin to 24-bit 30-pin LVDS connection cable
32602-008000-200-RS	Dual-channel 18-bit 30-pin to 24-bit 30-pin LVDS connection cable



# PM-1028-8

4-port Non-isolated RS-232/422/485 Serial Communication PC/104 Module



**P/N: 32205-001201-100-RS**

Shipped with 4-port RS-232 connection cable

## Features

- PC/104 form factor
- 16C554 UART controller
- Four jumpers for RS-232 serial communication selection
- Supports shared IRQ or independent IRQ mode
- Jumper selectable interrupt level
- Max. baud rate: 921.6kb/s
- Windows® NT, Windows® 2000, Windows® XP, Windows® CE and Linux driver support

## Specifications

	PM-1028-8
Bus Interface	PC/104
Number of Ports	8-port
Interrupt Level	3, 4, 5, 7, 9, 10, 11, 12
Chipset	TI 16C554A
Baud Rate	921.6 Kbps (max.) at 14.745 MHz clock input
Serial Port	16C550-compatible UARTs
Connectors (40-pin; 2.54 box header)	2 x 4-port RS-232
Power Consumption	+5V@0.6A (max.)
Operating Temperature	0°C ~ 60°C
Dimensions	96 mm x 90 mm
Driver Support	Windows®NT, Windows®2000, Windows®XP, Windows®CE and Linux

## Packing List

- 1 x 4-port non-isolated RS-232/422/485 serial communication PC/104 module
- 1 x 4-port RS-422/485 connection cable
- 1 x RS-232 cable
- 1 x Mini jumper pack

## Ordering Information

Part No.	Description
PM-1028-8-R20	8-port non-isolated RS-232 serial communications PC/104 module