

## Main Features

- Intel® 4th generation Core™ processor
- Mobile Intel® QM87 chipset
- Support PICMG COM.0 Rev. 2.1 Type 6 pin-outs
- Support Dual channel ECC-DDR3L/SO-DIMMs 1333/1600MHz up to 16GB
- Support PCIe x16, 7 x PCIe x1, 4 x USB 3.0/8 x USB 2.0, 2 x SATA 3.0/ 2 x SATA 2.0 and GbE
- Up to 3 x independent displays, VGA, eDP/LVDS, DVI, HDMI, DisplayPort
- Dimension 95 x 125mm<sup>2</sup> (W x L)

## Product Overview

The ICES 670 is a COM Express Type 6-pinouts Basic Module featuring Intel® Lynx-Point PCH chipset supports Intel® 4th generation Intel® Core™ processors (Haswell/Shark Bay mobile) with Dual ECC-DDR3 SO-DIMM socket up to 16GB DDR3L 1333/1600MHz SDRAM. The ICES 670 integrated Intel® GT1/GT2/GT3 graphics engines with DX11.1 support or expands via PCI express graphic 1 x 16 lanes and support three DDI (Digital Display Interface) to follow the standard of PICMG COM.0 Rev. 2.0 specification. It allows type 6-pinout Carrier board to implement HDMI, DVI, DisplayPort, eDP and legacy VGA, single channel 18-/24-bit LVDS interface. The high performance ICES 670 COM express Basic Module supports 4 x USB 3.0/8 x USB 2.0, 2 x SATA 3.0/ 2 x SATA 2.0 and 7 x PCIe1 lanes through our NEXCOM designed ICES 8060 as well as customized solution for your embedded projects.

## Specifications

### CPU Support

- Support Intel® BGA 1364, 4th generation Intel® Core™ processors (Haswell-M/Shark Bay-MB)

### Main Memory

- Dual ECC-DDR3L/SO-DIMMs, support 1333/1600MHz memory up to 16GB

### Platform Control Hub

- Intel® 8 series (Lynx Point-M) PCH chipset

### BIOS

- AMI system UEFI BIOS
- Plug and play support
- Advanced power management and advanced configuration & power interface support

### Display

- Intel® GT1/GT2/GT3 integrated graphics processing unit (iGPU)
- One PCI express x16 (Gen. 3.0) lane down to the carried board
- Supports VGA and eDP/LVDS interface
- 3 x DDI (Digital Display Interface) supports HDMI/DVI, DP/eDP interfaces

### Audio

- HD audio interface

### On-board LAN

- Intel® Clarkville (I217) Gigabit Ethernet, support next generation vPro/iAMT

- Support PXE boot from LAN, wake on LAN function
- Signals down to I/O board

### COM Express Connector

- AB  
VGA/LVDS/8 x USB 2.0/HD Audio/4 x SATA/GbE/GPIO/LPC bus,  
1 x PCIe x4/2 x PCIe x1/SMBus (I2C)/SPI BIOS/SPK out
- CD  
PCIe x16/3 x DDI/4 x USB 3.0/1 x PCIe1

### Power Requirements

- +12V, +5VSB, +3.3V RTC power

### Dimensions

- 95mm (W) x 125mm (L)

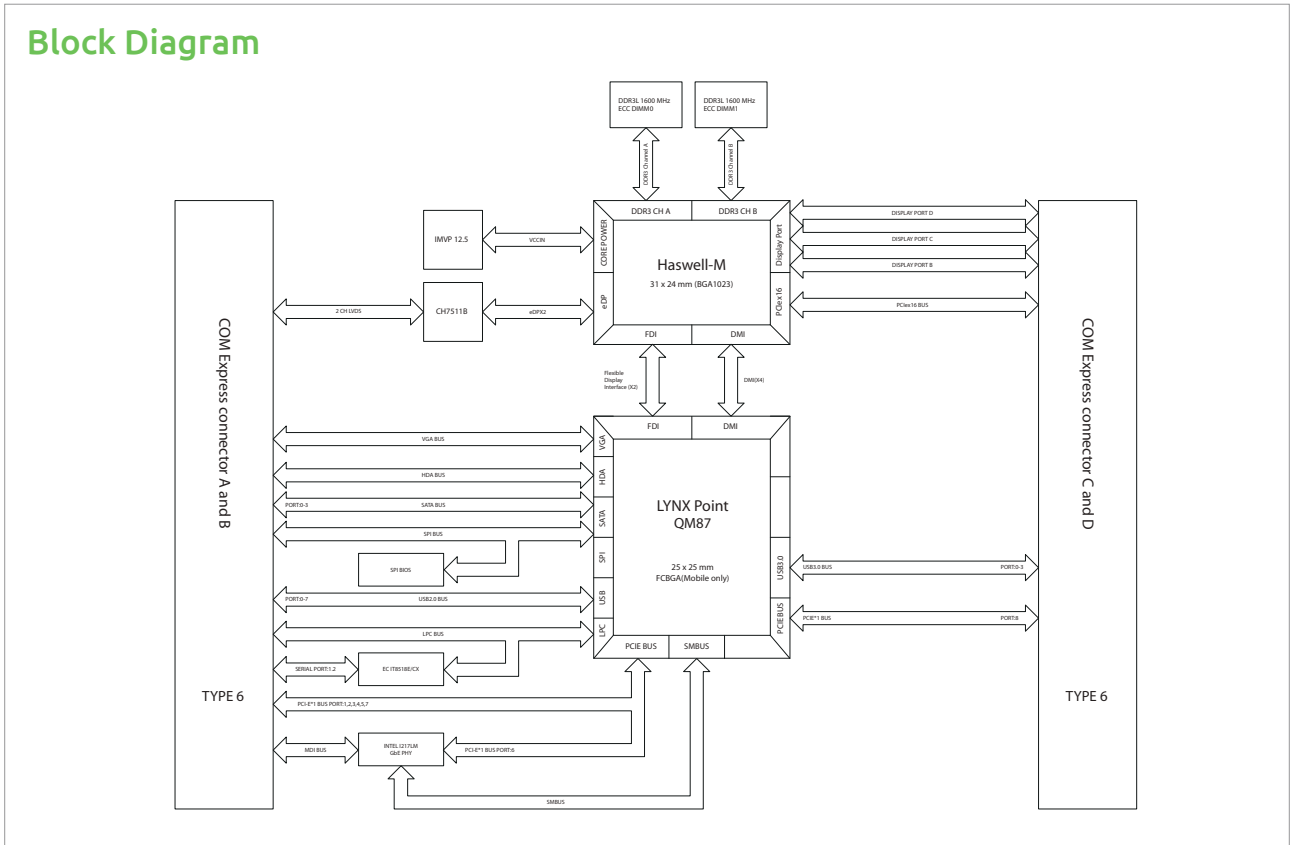
### Environment

- Board level operating temperatures: -15°C to 60°C
- Storage temperatures: -20°C to 80°C
- Relative humidity:  
10% to 90% (operating, non-condensing)  
5% to 95% (non-operating, non-condensing)

### Certifications

- Meet CE
- FCC Class A

## Block Diagram



## Ordering Information

- ICES 670 (P/N: 10K00067000X0)**  
 COM Express Type 6, Basic Module, 4th Gen Haswell Core i7-4700EQ (4C8T, 2.4G, 47W), QM87, DDR3L x3, VGA, eDP/ LVDS, DVI, HDMI, DP, USB 3.0 x4, USB 2.0 x 8, GbE, SATA x4, PCIe x16, seven PCIe x1
- ICES 670-4400E (P/N: 10K00067002X2)**  
 COM Express Type 6, Basic Module, 4th Gen Haswell Core i5-4400E (2C4T, 2.7G, 37W), QM87, DDR3L x 3, VGA, eDP/ LVDS, DVI, HDMI, DP, USB 3.0 x4, USB 2.0 x8, GbE, SATA x4, PCIe x16, seven PCIe x1