

COM Express™ Computer-On-Modules

- Introducing high speed serial differential signalling as main means of data transport

From Parallel to Serial

COM Express™ modules are highly integrated off-the-shelf building blocks based on a PCI Express bus architecture that plug into custom made, application-specific carrier boards. COM Express™ modules measure just 95 mm x 125 mm and include most generic functions such as video, audio, Ethernet, storage interfaces and USB ports that are needed for most applications. A custom designed carrier board complements the COM Express™ core module with additional functionality required for a specific application.

COM Express™ is a result of the convergence of the latest technology standards based on serial differential signalling such as PCI Express, USB 2.0, Serial ATA, LVDS and Serial DVO implemented on an extremely compact Computer-on-Modules. Moving from parallel busses such as PCI and IDE to serial busses such as PCI Express is a change the scale of which has not been seen since PCI replaced ISA.

■ PCI Express as central bus

At the core of the COM Express™ module lies the PCI Express bus. PCI Express is a two-way serial connection that carries data in packets along two pairs of point-to-point data lanes. It can be used as a peripheral device interconnect, a chip-to-chip interconnect, and a bridge to other interconnects like IEEE 1394b, USB 2.0, SATA and Gigabit Ethernet. PCI Express constitutes the most significant PC bus architecture change in over a decade, delivering a huge increase in I/O bandwidth while maintaining software compatibility with the existing PCI infrastructure.

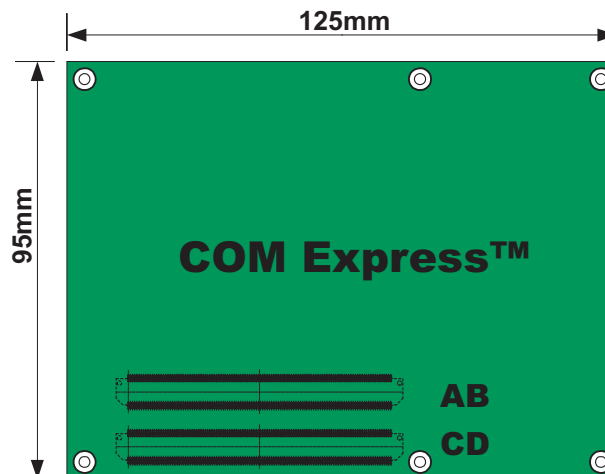
■ Legacy Support

In an effort to protect existing investments, the initial COM Express standard will maintain support for 32-bit PCI, ISA through LPC and PATA IDE. At a later stage the COM Express™ formfactor will abandon both PCI and IDE legacy signals to make room for two additional Gigabit Ethernet ports and 10 additional PCI Express lanes.



AB Connector

1 Gigabit Ethernet port
LPC interface
4 Serial ATA channels
High Definition Audio
8 USB 2.0 ports
6 PCI Express Lanes x1
Dual 24-bit LVDS channels
Analog VGA
TV-out ports (SDTV/HDTV)
8 GPIO pins
Keyboard
+12V primary power input
+5V standby and 3.3V RTC



CD Connector

Parallel ATA, IDE port
alternate definition assigns this to 2 additional Gigabit Ethernet ports
32-bit PCI v2.3 bus
alternate definition assigns this to 10 additional PCI Express x1 lanes
PCI Express x16 for Graphics
these pins can also be assigned to two SDVO extensions (multiplexed)
SMB and I ² C bus
Power / Thermal control
+12V primary power input

Above connector assignments comply with
PICMG COM.0 COM Express™ Module,
Basic Formfactor