

# ETX-N270 Series

## COMPUTER-ON-MODULE CORES FOR CUSTOM EMBEDDED SYSTEMS



- ETX 3.0 compliant
- High performance, low power, rugged
- Based on the low-power, 1.6GHz Intel® Atom Processor
- SO-DIMM socket supports up to 2GB DDR2 SDRAM
- Hi-res CRT, dual-channel 18-bit LVDS, and SDVO video
- SATA, IDE, USB 2.0, serial, AC97 audio
- 10/100Mbps Ethernet LAN
- Dual expansion buses: 32-bit PCI and 16-bit ISA
- -20°C to +70°C enhanced operating temperature

### DESCRIPTION

Diamond's ETX-N270 Series computer-on-modules (COMs) are compact embedded computing cores suitable for powering a wide range of embedded applications. By plugging these powerful, plug-and-play COMs into standard or custom application baseboards, OEMs can reduce development costs, minimize design risks, and shorten time-to-revenue while benefiting from the latest embedded technologies.

Each ETX-N270 Series COM integrates a complete set of PC-compatible functions, including a high-performance, low-power Intel® Atom processor and up to 2GB of high-speed system memory.

In addition to these core computing functions, the modules also provide interface controllers for high-resolution CRT and LVDS-interfaced displays, 10/100Mbps Ethernet, and both SATA and IDE storage devices, as well as USB 2.0, audio, serial, parallel, and PS/2 ports.

For maximum application flexibility, the ETX-N270 Series COMs can be interfaced to application-specific circuitry via both 32-bit PCI and 16-bit ISA expansion buses.

To support real-world applications subject to temperature extremes, the modules support an enhanced operating temperature range of -20°C to +70°C.

### OPERATING SYSTEM SUPPORT

The ETX-N270 Series COMs are compatible with Windows XP and Linux 2.6. Contact Diamond for information regarding support for other operating systems.

|                        |  |
|------------------------|--|
| <b>Processor</b>       | 1.6GHz Intel® Atom N270 CPU soldered on-board  |
| <b>Chipset</b>         | Intel 945GSE with Intel ICH7M  |
| <b>Front Side Bus</b>  | 533MHz   |
| <b>L2 Cache</b>        | 512KB  |
| <b>System Memory</b>   | 200-pin SO-DIMM socket<br>Supports up to 2GB DDR2 SDRAM  |
| <b>BIOS</b>            | Phoenix Award PnP  |
| <b>Graphics</b>        | Intel GMA950 graphics core<br>Up to 2048x1536 resolution<br>RGB CRT output<br>Dual channel 18-bit LVDS output<br>SDVO interface (VGA, DVI, LVDS, TV out)<br>Supports dual independent displays |
| <b>Audio</b>           | AC'97 CODEC (Realtek ALC655)<br>Mic in, line in/out  |
| <b>USB Ports</b>       | 4 USB 2.0 ports  |
| <b>Serial Ports</b>    | 2 COM ports with logic-level signaling   |
| <b>Networking</b>      | 10/100Base-T Ethernet (Intel 82562)  |
| <b>Mass Storage</b>    | 2 SATA ports with 150MB/s data rate<br>1 IDE port; supports 2 devices  |
| <b>Parallel/Floppy</b> | SPP/EPP/ECP or floppy (shared interface)   |
| <b>Keyboard/Mouse</b>  | PS/2 keyboard and mouse ports<br>(USB keyboard/mouse also supported)   |
| <b>Other</b>           | SMbus, I <sup>2</sup> C, IrDA serial interfaces;<br>PC speaker interface; watchdog timer   |
| <b>Expansion Buses</b> | 32-bit PCI bus (4 PCI masters)<br>16-bit ISA bus   |
| <b>Form-factor</b>     | ETX 3.0 compliant (4.5 x 3.7 inches)   |
| <b>Weight</b>          | 2.8oz (79g)  |
| <b>Supply Voltage</b>  | +5V DC   |
| <b>CPU/Chipset TDP</b> | 10W  |
| <b>Operating Temp</b>  | -20°C to +70°C   |
| <b>Humidity</b>        | 0 to 90% non-condensing  |
| <b>RoHS</b>            | Compliant  |

## ETX COM DEVELOPMENT SYSTEMS

In addition to the ETX-N270 COMs themselves, Diamond offers pre-integrated development kits based on generic or application-oriented ETX baseboards. This increases project efficiency and reduces risks by providing a known good environment for rapid application development.

To simplify the development process, these kits' ETX baseboards each provide I/O connectors for quick and easy access to nearly all system interfaces, a CompactFlash socket, and modular PC/104-Plus expansion. They also come with SO-DIMM memory, an extensive set of interface cables, and full documentation and software.

In addition to these features, the ETX form-factor Pluto baseboard (upper right) adds two serial ports, RS-232/422/485 buffering, digital I/O, a second Ethernet LAN interface, and digital I/O. Alternately, the EPIC form-factor Neptune baseboard (lower right) adds four serial ports, RS-232/422/485 buffering, a gigabit Ethernet LAN interface, a wide-input (5V/7-28V) DC-to-DC power supply, and an industry-leading data acquisition subsystem option.

## CUSTOM BASEBOARD DESIGNS

Through more than 20 years of experience producing industry-leading data acquisition I/O on PC/104 and PC/104-Plus modules and single-board computers, Diamond has developed an extensive library of analog, digital, and I/O interface technology. This expertise is now available in the form of application-specific baseboards tuned to fit precise customer requirements, coupled with ETX COMs that implement the processing power needed to drive the application.

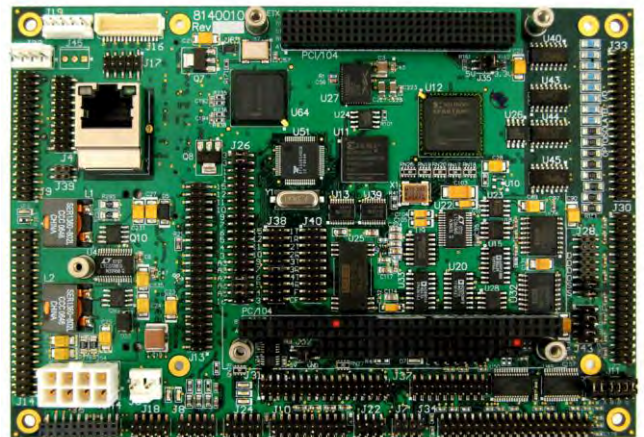
## DEVELOPMENT & MANUFACTURING SERVICES

To further assist OEMs using ETX-COM products, Diamond also offers the following value-added development and manufacturing services:

- Custom application baseboard design
- Operating system and device drivers
- BIOS customization and support
- Burn-in and screening
- Conformal coating
- Extended temperature testing
- Full systems integration
- Program management



**ETX form-factor development kit:** Matches the footprint of the ETX-N270 and provides connectors for system I/O, CompactFlash, PC/104-Plus expansion, two additional serial ports, RS-232/422/485 buffering, a digital I/O port, and a second Ethernet LAN interface.



**EPIC form-factor development kit:** Provides connectors for system I/O, CompactFlash, PC/104-Plus expansion, four additional serial ports, RS-232/422/485 buffering, a second Ethernet port, a 5V/7-28V DC-to-DC power supply, and an industry-leading data acquisition subsystem.

## ORDERING INFORMATION

| Part Number          | Description   |
|----------------------|---|
| <b>ETX-N270-1600</b> | ETX COM with Intel 1.6GHz Atom N270 CPU   |
| <b>MEM-1024-05</b>   | 1GB DDR2 SDRAM SO-DIMM module   |
| <b>MEM-2048-05</b>   | 2GB DDR2 SDRAM SO-DIMM module   |
| <b>6884010</b>       | ETX COM heat spreader for ETX-N270 COM  |
| <b>6884011</b>       | ETX COM heatsink for ETX-N270 COM   |
| <b>DK-NN270</b>      | Neptune N270 Development Kit: includes ETX-N270-1600, MEM-1024-05, 684010, Neptune baseboard with all features, cable kit, panel I/O board, drivers for Linux and Windows, and documentation. |
| <b>DK-PN270</b>      | Pluto N270 Development Kit: includes ETX-N270-1600, MEM-1024-05, 684010, Pluto baseboard, 1GB SDRAM, cable kit, drivers for Linux and Windows, and documentation.                             |