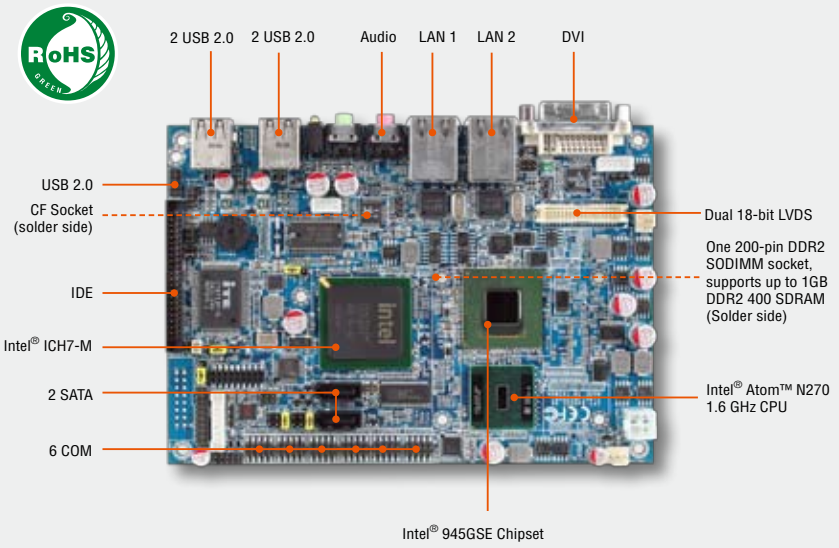
# EPI-945GSE

## Intel® 945GSE Atom™ N270 EPIC Module




## Features

- **Onboard Intel® Atom™ processor N270 1.6 GHz CPU**
- **Intel® 945GSE / ICH7-M Chipset**
- **One SODIMM up to 2 GB DDR SDRAM**
- **Dual view, 2-CH LVDS, TV-out, DVI**
- **Dual Realtek 8111C Gigabit Ethernet**
- **1 CF, 2 SATA, 6 COM, 6 USB, 16-bit GPIO**
- **Options: 10W Amplifier, Express Card/34mm, Built-in Touch Screen Interface**

Atom™ | Intel® 945GSE | Dual View | LVDS | 2 GbE | 2 SATA | 6 COM | 6 USB | 16 GPIO

## Specifications

### System

| | |
|---|---|
| • **CPU** | Intel® Atom™ processor N270 1.6 GHz CPU |
| • **BIOS** | Award 4 Mbit Flash BIOS |
| • **System Chipset** | Intel® 945GSE / ICH7-M |
| • **I/O Chip** | ITE 8712F/KX + Fintek F81216DG |
| • **System Memory** | One 200-pin DDR2 SODIMM supports up to 2 GB DDR2 400/533 MHz SDRAM |
| • **SSD** | One CompactFlash Type I/II socket |
| • **Watchdog Timer** | Reset: 1 sec.~65535 min. and 1 sec. or 1 min./step |
| • **Expansion** | One Express Card/34mm Slot (Optional)<br>One PCIe x1 (For System) |

### I/O

| | |
|---|---|
| • **MIO** | 1 x EIDE, 2 x SATA, 1 x K/B & Mouse (Optional)<br>5 x RS-232, 1 x RS-232/422/485 |
| • **IrDA** | 115k bps, IrDA 1.0 compliant |
| • **USB** | 6 x USB 2.0 ports (2 for pin header, 4 for edge Connectors) |
| • **DIO** | 8-bit GPI, 8-bit GPO |

### Display

| | |
|---|---|
| • **Chipset** | Intel® 945GSE |
| • **Display Memory** | Intel® DVMT 3.0 supports up to 224 MB shared video memory |
| • **Resolution** | DVI mode: 2048 x 1536 @ 75 Hz<br>LCD/Simultaneous mode : 1600 x 1200 @ 75 Hz |
| • **Multiple Display** | DVI + LVDS, DVI + TV out |
| • **LVDS** | Dual-channel 18-bit LVDS |
| • **DVI** | Chrontel CH7307 SDVO to DVI transmitter |
| • **TV-out** | Intel® 945GSE Integrated TV-out Interface Supports HDTV |

### Built-in Touch Screen (Optional)

| | |
|---|---|
| • **Chipset** | PenMount 6000 |
| • **Touch Screen Interface** | With 9-pin 2.0mm box header (can be selected to support 4/5/8-wire touch screen) |

### Audio

| | |
|---|---|
| • **AC97 Codec** | Realtek ALC655 supports 5.1-CH Audio |
| • **Audio Interface** | Mic in, Line in, Line out |
| • **Amplifier** | 10W YAMAHA YDA138 Audio Power Amplifier (Optional) |

### Ethernet

| | |
|---|---|
| • **LAN Chip** | 2 x Realtek 8111C |
| • **Ethernet Interface** | 1000 Base-Tx Gigabit Ethernet compatible |

### Mechanical & Environmental

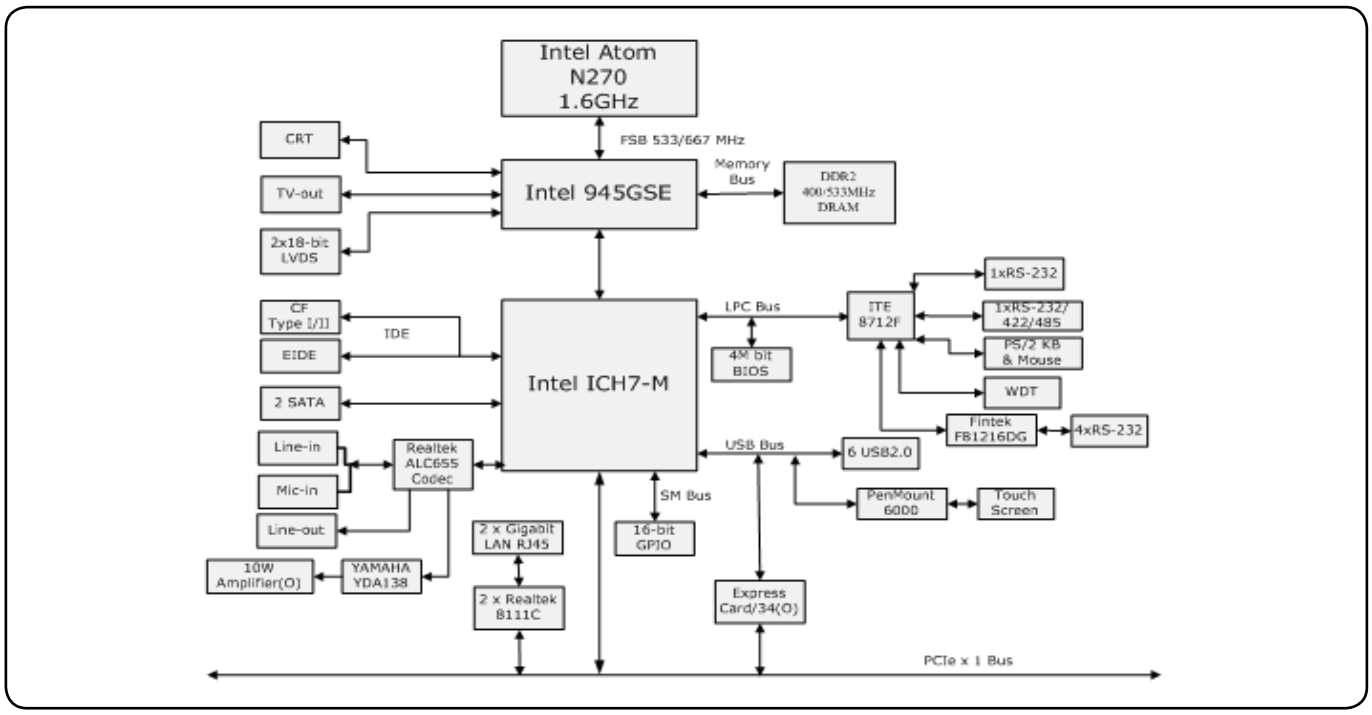
| | |
|---|---|
| • **Power Requirement** | +12V, +5Vsb (for ATX only) |
| • **Power Type** | AT / ATX |
| • **Operating Temperature** | 0~60°C (32~140°F) |
| • **Operating Humidity** | 0%~90% relative humidity, non-condensing |
| • **Size (L x W)** | 4.5" x 6.5" (115 mm x 165 mm) |
| • **Weight** | 0.4 lbs (0.18 kg) |

## Ordering Information

- **EPI-945GSE**
  Intel® 945GSE Atom™ N270 EPIC Module with LVDS, Audio, 2 Gigabit Ethernet, CF, 6 COM, 6 USB, 16-bit GPIO
- **ACC-CF-xx**
  CompactFlash Card Series (xx = Capacity, Capacity Option: 128, 256, 512 MB, 1, 2, 4 GB)
- **ACC-MEM-xx**
  Memory Series (xx = Capacity, Capacity Option: 128, 256, 512 MB, 1 GB)

EPIC

## Block Diagram

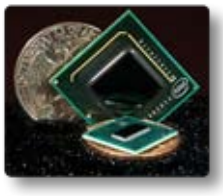



## Intel® Atom™ Platform

Newly designed from the ground up, the Intel® Atom™ processor is based on entirely new hafnium-based 45nm microarchitecture. Representing Intel's smallest and lowest power processor yet, the Intel® Atom™ processor enables a new generation of powerful and energy-efficient Mobile Internet Devices (MIDs) and a new category of simple devices for the internet called netbooks and nettops that will be available at affordable prices.

Delivering new design possibilities due to its remarkably small size and performance-per-watt advantages, the Intel Atom processor provides:

- **Performance** for a great internet experience in a range of sub 1 watt to 4 watt thermal power envelope based on industry leading benchmarks (EEMBC) and web page rendering performance
- **Greater energy efficiency** for mobile devices enabled by incredibly low average power and idle power, scaling performance from 800MHz to 1.86GHz
- **Power-optimized front side bus** of up to 533MHz for faster data transfer on demanding mobile applications
- **Scalable performance** and increased power efficiency with multi-threading support
- **Improved performance on multimedia and gaming applications** with support for Streaming SIMD Extensions 3 (SSE3)
- **Improved power management** with new Deep Power Down (C6) enabled on the Intel® Atom™ processor Z5xx series for MIDs, and extended C4 states enabled on Intel® Atom™ processor N270 for netbooks, in addition to non-grid clock distribution, clock gating, CMOS bus mode, and other power saving architectural features
- **Low TDP** enabled by improved power management technologies delivering high performance to run the real Internet and a broad range of software applications



**Intel® Atom™ Processor**
The smallest processor in the world so far ; especially designed for Mobile Internet Devices (MIDs) with samll footprint, low power consumtion and advanced power management technology.

### Intel® Atom™ Processor Comparison Chart

| | Intel®Atom™ N270 | Intel® Atom™ Z530 / Z510 | Silverthorne XL |
|---|---|---|---|
| Codename | Diamondville | Silverthorne | Silverthorne XL |
| Cores/HTT+ | 1/Yes | 1/Yes (Z510 – 1/No) | 1/Yes |
| L1 Cache | 24kB data / 32kB instruction | | |
| L2 Cache | 512kB, 8-way | | |
| L2 Dynamic Cache Sizing | Yes | | |
| FSB Speed | 533MHz | 533MHz (Z510 – 400MHz) | 533MHz (Value – 400MHz) |
| FSB Signaling | 1.05V AGTL+ | 1.05V CMOS | 1.05V CMOS |
| FSB Lane Reversal | Yes | | |
| Intel® 64 | No | | |
| Intel® Virtualization Technology | No | Yes | Yes |
| TDP | 2.5W | 2.0W (Z510), 2.2W (Z530) | 2.2W |
| Integrated Heat Spreader | No | No | Yes |
| Industrial Temp SKUS | No | No | Yes |
| Package (Size, Ball, Pitch) | 22x22mm, 437 ball, 1.0mm | 13x14mm, 441 ball, 0.6mm (requires HDI) | 22x22mm, 437 ball, 1.0mm |