



High Speed Communication Module

Key Features

- High Speed Miniature Single Board Computer, SODIMM-200 Connector
- Freescale MPC8314 PowerPC CPU running at 400MHz
- Up to 512MB DDR2 RAM
- 512MB NAND Flash Memory
- Two Gigabit Ethernet Interfaces
- High Speed USB Port (Host/Device)
- Two PCI Express Interfaces
- Single 3.3V Supply
- Low Power Consumption for fanless Design
- Industrial Temperature Range

Typical Applications

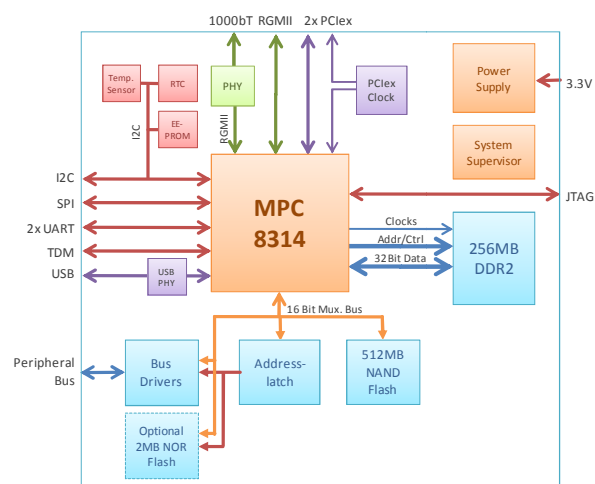
- High Speed Router/Gateway
- Headless Industrial Controller
- VoIP Gateway
- High Speed Wireless Access Point
- Firewall, VPN Appliance
- Network Attached Storage (NAS)
- Home Server

High Speed Communication Module

The NetModule High Speed Communication Module is a high performance Single Board Computer (SBC) module aimed for the rapid development of industrial controllers and networking equipment. The module is best suited for low to medium volume designs with critical time to market and demanding environmental requirements.

The Module is built around the Freescale MPC8314 controller. This power efficient CPU features suspend modes for low power consumption and a wide range of state-of-the-art interfaces.

Two 10/100/1000Mbps twisted pair Ethernet ports provide perfect access to the most widely used network technology. For harsh industrial environments a fiber optical module can be connected. The two ports allow implementing redundant industrial Ethernet links. The two PCI Express interfaces and the USB host port provide the means to connect a variety of off-the-shelf peripherals. Among these are WLAN modules, SATA controllers and UMTS/GSM modules. Custom hardware or an FPGA can be attached to the peripheral bus.



The High Speed Communication Module comes with a bootloader and board support packages for VxWorks 6.x and Linux 2.6.x. Production grade drivers for the onboard peripherals are included.

NetModule licenses the complete design, providing all information required to manufacture the module. This includes the schematics, layout, all fabrication files and test programs. Thus a high degree of customers' independence is guaranteed.

The NetModule High Speed Communication Module is therefore an ideal choice for any network oriented embedded system.

Features	
General	<p>Miniature Single Board Computer on 67.6mm x 80mm module.</p> <p>SODIMM-200 edge card connector, mates with standard inexpensive SODIMM connector (1.8V keying). Additional mounting holes for reliable attachment are available.</p> <p>Single 3.3V supply. All required voltages generated on module.</p> <p>Power consumption ~5W during full operation.</p> <p>Control signals for implementation of Low-Power modes on mainboard.</p> <p>Board layout optimized for minimal EMI (Electro Magnetic Interference) and robustness against EMC (Electro Magnetic Compatibility).</p> <p>Module pinout with large number of ground pins for improved Signal Integrity.</p>
CPU	<p>Freescalar MPC8314 CPU running at 400MHz. Superscalar, pipelined PowerPC RISC architecture with 2 integer and 1 floating point units. 16kB data and 16kB instruction cache with error checking & correction (ECC). Security engine for block encryption and public/private key computation.</p>
Memory	<p>512MB DDR2-266 memory, 32 Bit bus (default 256MB, optional 128MB).</p> <p>128MB to 512MB NAND Flash on 8 Bit bus. Hardware accelerated high speed access with ECC support.</p> <p>Optional: 512kBytes to 2MBytes NOR Flash for bootloader.</p> <p>32kBit Serial EEPROM (higher capacity available upon request).</p>
Connectivity	<p>Dual Gigabit Ethernet (10/100/1000Mbps). One Gigabit Ethernet port with PHY on module which interfaces directly with a transformer on mainboard. One RGMII Ethernet port which interfaces with Ethernet PHY or switch on mainboard. IEEE 1588 precision clock synchronization. Ethernet MDIO PHY control interface.</p> <p>Two PCI Express x1 Lanes compliant with PCI Express Specification 1.0a (2.5GT/s). All PCI Express clocks generated onboard.</p> <p>USB High Speed Host port (480Mbps), USB High Speed Device port (480Mbps).</p> <p>Two 16450/16650 compatible UARTs with FIFO. Operation up to 460kBps supported. One full featured UART with hardware handshaking and additional control signals. One standard UART with hardware handshaking. LVTTTL interfaces.</p> <p>I2C bus at 100/400kHz. SPI bus up to 33 MBps. TDM highway with up to 128 channels.</p>
Bus Interface	<p>Multiplexed address-/databus. Easily interfaces with standard peripherals or FPGA on mainboard. 16 Bit data bus and 18 Bit address bus. Two individually configurable chip selects. Synchronous or asynchronous mode possible. 4 interrupt Inputs, 2 with Wake-Up capability, 4 general purpose IOs.</p>
Misc Peripherals	<p>Temperature sensor. Range -55°C to 125°C, resolution 0.5°C, alarm interrupt.</p> <p>I2C Real Time Clock with alarm function and battery backup.</p>
System Supervisor	<p>Dedicated microcontroller based System Supervisor.</p> <p>Power sequencing and voltage supervision on module.</p> <p>Window triggered watchdog for improved system reliability.</p>
Debug Support	<p>JTAG and UART available on small/low cost FCC connector. Connects with debug interface board featuring standard DSub9 serial connector and 20pin JTAG header</p> <p>Generic LED and test point on CPU GPIO pins.</p>
Environmental	<p>Storage: -40°C to +100°C.</p> <p>Operation: -20°C to 70°C.</p> <p>Pb free, ROHS compliant.</p>
Operating Systems	<p>VxWorks 6.x, Linux 2.6.x, others available on request.</p>

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