

# MATXM-CORE-411-B

## MicroATX Motherboard

■ Embedded Computing for  
Business-Critical Continuity™

### PRELIMINARY DATA SHEET

#### MicroATX motherboard offers significant performance and power-saving options

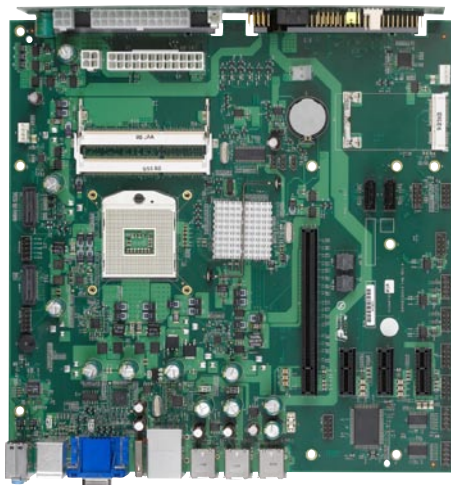
- rPGA989 socket (Socket G) for Intel® Core™ i7 processor variants up to 2.6 GHz
- Two SO-DIMM sockets for 512MB to 8GB DDR3
- One PCI Express x16 and three PCI Express x1 expansion sockets
- Dual simultaneous display
- PCI Express Mini Card socket for WiFi/WiMAX
- Unique midplane allowing easy, cost-effective maintenance
- Management technology for remote diagnostics and repair

The MATXM-CORE-411-B from Emerson Network Power is a MicroATX format motherboard based on the very latest Intel® Core™ i7 processor architecture processor and Intel® QM57 chipset giving significant performance and power-saving options over existing Intel® Core™2 Duo based MicroATX products. In addition, the two-chip processor solution includes a new and improved graphics core with Intel® Clear Video Technology, more and faster I/O interfaces and other enhancements to significantly improve the total cost of ownership proposition.

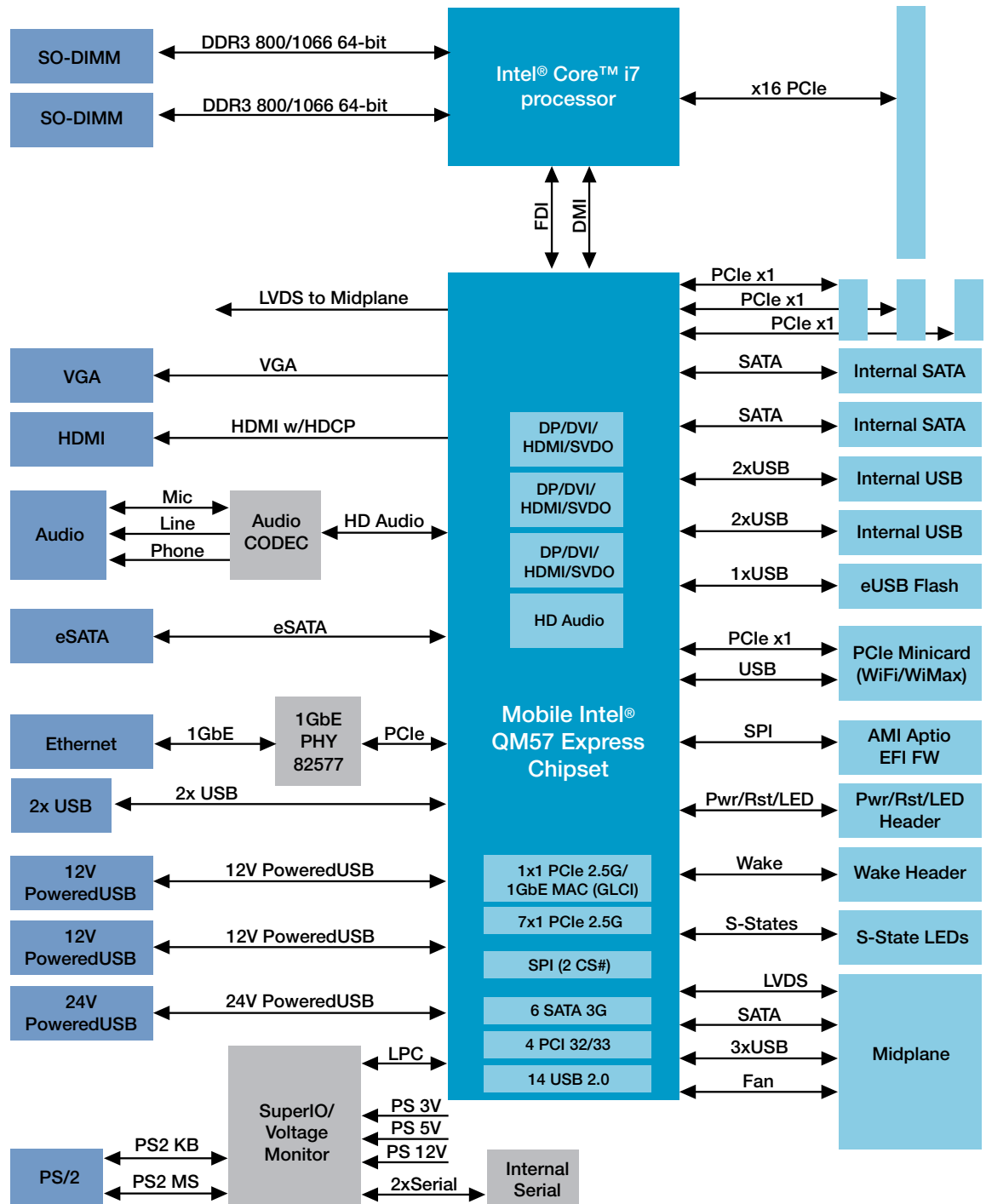
The new Nehalem micro-architecture introduces many innovative enhancements: three level cache hierarchy with two levels dedicated per core to reduce latency; a new power-saving state plus per core power control; each core can now run two threads simultaneously; thread synchronization and new streaming SIMD extensions for better XML performance. In real terms, these enhancements maximize the CPU and graphics performance to improve user experience while staying within the thermal limits.

Intel® Active Management Technology (AMT) enables a remote manager to protect, maintain, and manage the board even if it is in a sleep state, its operating system is unresponsive, hardware (such as a hard drive) has failed, or software agents are missing. This level of remote diagnostic capability enables maintenance costs to be dramatically reduced because systems based on MATXM-CORE-411-B can be updated without requiring a technician to visit.

While being suitable for any MicroATX chassis, an optional midplane is supplied. When mounted within a suitable enclosure, the power and LCD display cables are routed through the midplane allowing the motherboard to be easily removed for servicing and maintenance. MATXM-CORE-411-B has both 12V and 24V PoweredUSB connections suitable for powering devices like bar code scanners and POS printers without the expense of additional power supplies. MATXM-CORE-411-B supports dual independent displays and has VGA/LVDS and HDMI interfaces for connection to the widest possible range of displays.



Block Diagram



## Hardware Specifications

### PROCESSOR SOCKET

- rPGA989 socket (Socket G) for Intel® Core™ i7 processor variants up to 2.6 GHz

### CHIPSET

- Mobile Intel® QM57 Express

### MEMORY

- Two DDR3 800 MHz/1066 MHz SO-DIMM sockets. Maximum memory capacity is 8GB (4GB per SO-DIMM), minimum capacity is a single 512MB SO-DIMM

### VIDEO

- Supports dual-independent displays using the Mobile Intel QM57 Express Chipset's Integrated Graphics Controller. The primary display is either LVDS or VGA, and the secondary display is HDMI. During boot, if a VGA monitor is detected then VGA is selected as the primary display, otherwise the default is LVDS.
- Dual-channel LVDS is supported by the Integrated Graphics Controller on the QM57 chipset for up to 24-bit color per pixel. Using suitable cables, either 18-bit or 24-bit LCD panels can be driven for use in multiple types of display applications. Display and backlight connection is via a .100" x .100", 50-pin, dual-row header located on the midplane.

### PCI EXPRESS

- MATXM-CORE-411-B is fitted with one x16 and three x1 PCI Express gen 2 slots

### ETHERNET

- MATXM-CORE-411-B has a single RJ-45 connector with integrated link/activity and connection speed LEDs mounted in the back panel I/O region for 10/100/1000 BaseT Ethernet connection provided by the QM57 integrated MAC and Intel® 82577 Hanksville Gigabit Ethernet (GbE) PHY.
- Wake-on-LAN and AMT6 are supported.

### WIFI/WIMAX

- Supplied with a PCI Express Mini Card connector supporting the Intel® WiMAX/WiFi Link 5050 and Intel® WiFi Link 5000 Series wireless devices.

### STORAGE

- There are a total of three internal SATA interfaces to connect physical or solid state SATA disks. Two of the SATA ports are directly on the MATXM-CORE-411-B motherboard and a third is situated on the midplane.

- One eSATA port is available on the rear I/O panel for external storage.

- In addition, there is a socket for a Z-U130 flash based hard drive that is available in sizes up to 16GB. These flash drives are consume very little power, have impressive read/write speed and are extremely robust with a high mean time between failure (MTBF).

### USB

- All USB ports, including PoweredUSB, support low-speed, full-speed, and high-speed using the USB 2.0 Enhanced Host Controller Interface (EHCI). There are two standard type A connectors located on the back panel I/O region.
- In addition, there are two 12V PoweredUSB ports and one 24V PoweredUSB port. PoweredUSB uses a standard USB host connector combined with an additional connector that is keyed to carry 5V, 12V, or 24V supplemental power.

### ADDITIONAL I/O

- Serial Ports – there are two on-board serial ports for legacy applications implemented on 10-pin dual-row headers.
- Fan Connections – Two 4-wire headers are situated near the CPU socket and two 4-wire headers are built onto the midplane.
- PS2 keyboard and mouse
- Audio – Standard 3.5mm mini-jack connections are provided for line output, microphone and headphone. In addition there is a 2-channel HD audio output as part of the integrated HDMI interface.
- Watchdog timer with programmable timeout

### COMPLIANCE AND CERTIFICATION INFORMATION

- EMC Compliance Standards
  - ▲ Motherboard industry standard requirements: Class B (FCC, VCCI, MIC, AS/NZ)
- Safety Standards
  - ▲ Motherboard industry standard requirements (UL, CSA, Ctick)

### Firmware and Operating System Support

#### BIOS

- AMI UEFI-based BIOS

#### OS COMPATIBILITY

- Windows® XP and Windows Vista
- WEPOS
- SuSE SLES 11

### Package Contents

- (1) MicroATX motherboard
- (1) Rear I/O panel
- (1) Midplane
- (1) Drivers CD
- (2) SATA cables

## SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

Intel and Core are trademarks of Intel Corporation or its subsidiaries in the United States and other countries. All other product or service names are the property of their respective owners.

This document identifies products, their specifications, and their characteristics, which may be suitable for certain applications. It does not constitute an offer to sell or a commitment of present or future availability, and should not be relied upon to state the terms and conditions, including warranties and disclaimers thereof, on which Emerson Network Power may sell products. A prospective buyer should exercise its own independent judgment to confirm the suitability of the products for particular applications. Emerson Network Power reserves the right to make changes, without notice, to any products or information herein which will, in its sole discretion, improve reliability, function, or design. Emerson Network Power does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent or other intellectual property rights or under others. This disclaimer extends to any prospective buyer, and it includes Emerson Network

**Emerson Network Power.**  
The global leader in enabling  
*Business-Critical Continuity™*.

- AC Power
- Connectivity
- DC Power
- Embedded Computing

- Embedded Power
- Infrastructure Management & Monitoring
- Outside Plant
- Power Switching & Controls

- Precision Cooling
- Racks & Integrated Cabinets
- Services
- Surge Protection

### Emerson Network Power

Offices: Tempe, AZ U.S.A. 1 800 759 1107 or +1 602 438 5720

Paris, France +33 1 60 92 31 20 • Munich, Germany +49 89 9608 2333 • Tel Aviv, Israel +972 9 9560361

Hong Kong +852 2176 3540 • Shanghai, China +86 21 3395 0289 • Tokyo, Japan +81 3 5403 2730 • Seoul, Korea +82 2 3483 1500

[EmersonNetworkPower.com/EmbeddedComputing](http://EmersonNetworkPower.com/EmbeddedComputing)

Emerson, Business-Critical Continuity and Emerson Network Power are trademarks of Emerson Electric Co. or one of its affiliated companies. ©2009 Emerson Electric Co.

MATXMCORE411B-D0 11/09