

## DATA SHEET



# EMX-2401

3U EMBEDDED CONTROLLER FOR  
PXI EXPRESS SYSTEMS

## FEATURES

Powerful computing power with Intel® Core™ i5-520E  
2.4 GHz processor

Dual Channel DDR3 SODIMM up to 8 GB 1066 MHz

Maximum System Throughput 2 GB/s

Reconfigurable PXI Express Link Capability for maximum  
flexibility: Four x4 links or Two x8 links

Integrated 160 GB 7200 RPM SATA hard drive

Enabling Hybrid test systems with Integrated I/O: Dual Gigabit  
Ethernet ports, Four USB 2.0 ports, Micro-D GPIB connector,  
ExpressCard/34 expansion slot, Trigger I/O for advanced  
PXI™ trigger functions

Integrated Intel® graphics, both DVI output and VGA output  
provide up to 1920 x 1200 resolution

Extended operating temperature, 0 to 55°C

Programmable watchdog timer



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# OVERVIEW

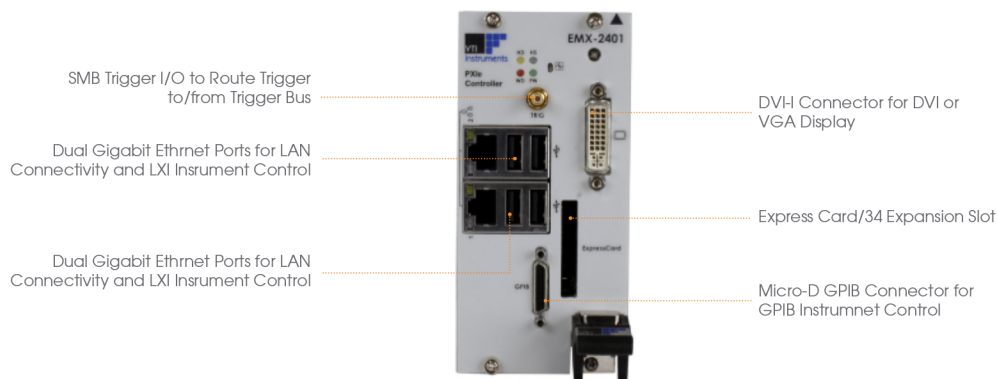
The EMX-2401 is a three-slot PXI Express embedded PC controller that enables compact test systems that combine instrumentation and host in a single mainframe. Using GPIB, USB, and LAN with the build-in front panel interfaces, the EMX-2401 simplifies communication with other instruments and integration into a hybrid test systems. The EMX-2401 is based on the Intel® Core™ i5 processor, and is ideal for electronic test or data acquisition applications that are processor-intensive or require multi-tasking environments.

## Processor

Combining the Intel® Core™ i5-520E 2.4 GHz processors, and up to 8 GB of 1066 MHz DDR3 memory, the EMX-2401 utilizes two separate computing engines on a single processor. The processor supports Intel® Hyper-Threading Technology with four simultaneous threads that enable execution of independent tasks simultaneously in a multi-tasking environment.

## Enabling Hybrid Test Systems

The EMX-2401 comes with various peripheral ports that allow it to be easily integrated into a hybrid test system. The front panel-mounted ExpressCard/34 expansion slot allows users to connect an additional PXI Express mainframe to the controller using a PXIe to ExpressCard bridge. Dual Gigabit Ethernet ports provide one port for LAN connection and the other for controlling LXI instruments. A Micro-D GPIB connector is available for legacy devices. Four USB 2.0 ports are available to connect keyboard, mouse, DVD drives and other peripheral devices.



## Multiple PXIe backplane configuration

With a configurable Gen 2 PCIe switch, the EMX-2401 can support four links x4 or two links x8 PXI Express link capability (automatically configured based on chassis configuration), with maximum system throughput of up to 2 GB/s. When it is configured to operate in a 2-link (2x8) configuration, it will enable x8 slots in the chassis to communicate peer-to-peer at up to 4 GB/s without involving the CPU. This PCIe backplane switch is also connected to the CPU via a Gen 1, x8 PCIe link, supporting data transfers to/from memory at up to 2 GB/s.

## PXI Trigger

The SMB bi-directional trigger connector on the front-panel can be used to route an external trigger signal to/from the PXI backplane. The trigger bus line that the trigger signal is routed to can be programmatically selected

## Rugged and stable operating environment

The embedded controller is designed to operate at the temperature between 0 and 55°C and to be stored at the temperature between -20 to 70°C. The wide range of the operating temperature and storage temperature makes the EMX-2401 ideal for many testing and measurement applications.

## Easy maintenance

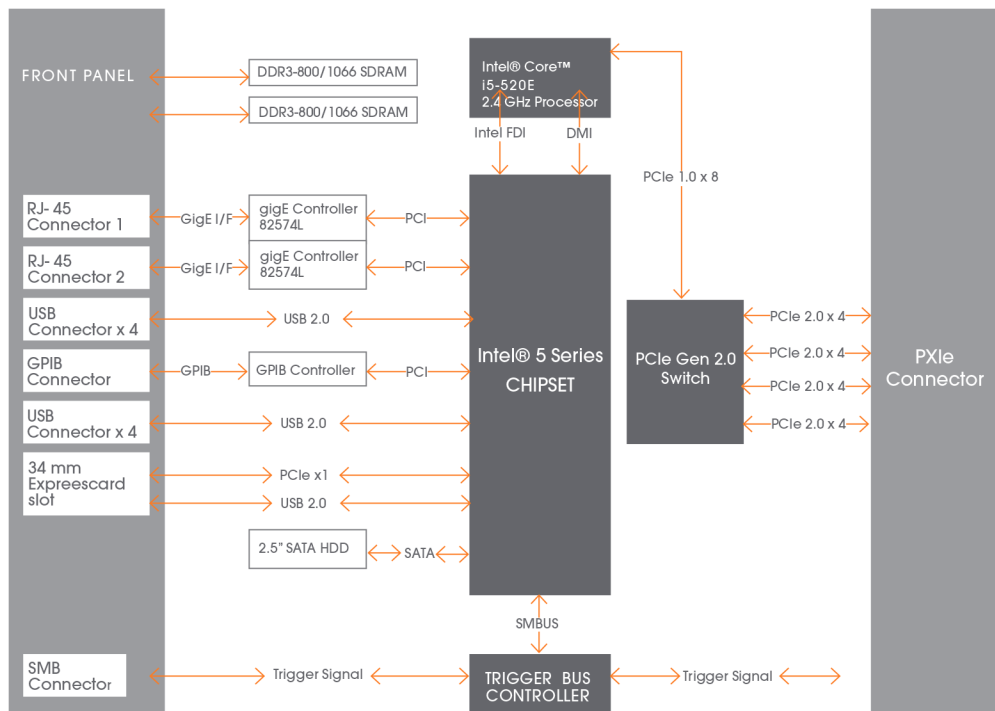
The EMX-2401 is easy to maintain or upgrade. The hard drive and memory can be removed or replaced without having to remove any cover.

## Windows operating systems support

The embedded controller supports Microsoft Windows operating systems and can be purchased with Windows 7 64-bit operating system pre-installed.

## High-resolution Display Support

With integrated Intel® graphics, both DVI output and VGA output provide up to 1920 x 1200 at 60 Hz resolution or up to 2048 x 1536 at 75Hz. For use with a monitor via VGA connection, a DVI-to-VGA adapter is required



## Detailed Specifications

## GENERAL

CPU	Intel® Core™ i5-520E
CPU CLOCK FREQUENCY	2.4 GHz
CPU THREADS	4
DMI	2.5 GT/s
CHIPSET	Intel® QM57 Express Chipset
MEMORY	
RAM TYPE	Dual-channel DDR3 SDRAM, 800/1066 MHz
CACHE	3 MB
RAM CAPACITY	Up to 8 GB SO-DIMM memory
HARD DRIVE	
TYPE	2.5" SATA II SSD
STORAGE	160 GB
VIDEO	Integrated Intel graphics
DISPLAY	
DVI RESOLUTION	1920 x 1200 at 60Hz or up to 2048 x 1536 at 75Hz
VGA RESOLUTION	1920 x 1200 at 60Hz or up to 2048 x 1536 at 75Hz
OPERATING SYSTEMS	Microsoft Windows® 7 (64-bit) is available pre-installed Other operating systems can be installed by the user

## I/O CONNECTIVITY

FRONT PANEL	
ETHERNET	Two RJ-45 connectors Intel® 82574L Gigabit Ethernet controller
USB	4 x USB 2.0 on the faceplate
GPIB	Micro-D 25-pin connector on the faceplate (ACL-IEEE488-MD1-A cable required) Onboard IEEE488 GPIB controller
TRIGGER I/O	SMB connector, programmable direction
EXPRESSCARD/34	ExpressCard 34mm expansion slot
BACKPLANE	
PCIE LINK CONFIGURATION	2x8 or 4x4, automatically selected based on chassis configuration
BANDWIDTH	2 GB/s max to/from the processor 4 GB/s max between PCIe backplane links in 2-link mode
PXI TRIGGER BUS ROUTING	Selectable to/from all 8 PXI_TRIG lines

## MECHANICAL AND ENVIRONMENTAL SPECS

SLOT REQUIREMENTS	3 PXIe slots, 1 system slot plus two controller expansion slots
WEIGHT	0.9 kgs (1.98 lbs)
OPERATING TEMPERATURE	0 to 55°C
STORAGE TEMPERATURE	-20 to 70°C
HUMIDITY	5 to 95%, non-condensing
SHOCK	30 G, half-sine, 11 ms pulse duration
VIBRATION OPERATING:	5 to 500 Hz, 0.21 Grms, 3 axes; Non-operating: 5 to 500 Hz, 2.46 Grms, 3 axes
EMISSIONS COMPLIANCE	EN 61326-1; FCC Class A
CE COMPLIANCE	Immunity: EN 61326-1

Specifications contained within this document are subject to change without notice

## Ordering Information

EMX-2401	3U Embedded Controller for PXI Express systems
OPTION 101	Windows 7, 64-bit pre-installed

### RELATED PRODUCTS

EMX-2500	Gigabit Ethernet Controller for PXIe Mainframes
CMX18	18-Slot 3U PXI Express chassis – Up to 4 GB/s