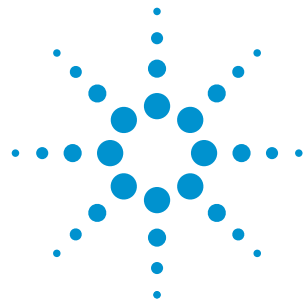


Agilent M9036A PXIe Embedded Controller

2.4 GHz Dual-Core, 4 GB



Data Sheet



DISCOVER the Alternatives...

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Agilent Technologies



OVERVIEW

Introduction

The Agilent Technologies M9036A is an embedded PXIe PC controller which enables a compact platform solution. With the 2-link, 2x8 Gen 2 backplane configuration, it is an ideal match for the Agilent M9018A PXIe chassis.

Product description

The Agilent M9036A is a three-slot module that can be used to build compact PXIe systems. It easily integrates into hybrid test systems using GPIB, USB, and LAN with the built-in front panel interfaces.

The embedded controller is built upon a mid-performance Intel Core i5 dual-core processor with Hyper-Threading Technology and is designed for applications in multi-tasking environments.

Applications

- Aerospace and defense
- Communications
- General purpose applications
- Electronic functional test

Features

- Intel Core i5-520E 2.4GHz processor
- 3-slot PXIe controller module
- 160 GB solid-state drive
- 4 GB RAM memory with 8 GB option
- Gen 2 PCIe®, 4- or 2-link configuration providing up to 4 GB/s max data bandwidth between links
- Front panel connections with USB (4), 10/100/1000 LAN (2), DVI-I, GPIB, ExpressCard 34, and SMB trigger connector
- Support for Microsoft Windows® 7 (32 and 64 bit)

Customer values

- Supports transportable applications
- Fast data transfer rates across the backplane
- Intel Hyper-Threading Technology provides performance required for multi-threaded applications
- Preloaded with operating system, drivers, and Agilent I/O libraries for reduced startup time
- Solid-state drive for improved mechanical reliability
- Specifically designed for PXIe systems that provide a choice between embedded and external controllers

EASY SETUP ... TEST ... AND MAINTENANCE

Hardware platform

Hardware overview

Based on the Intel i5 processor with Hyper-Threading Technology, the M9036A is ideal for modular applications requiring the compact size of an embedded computer.

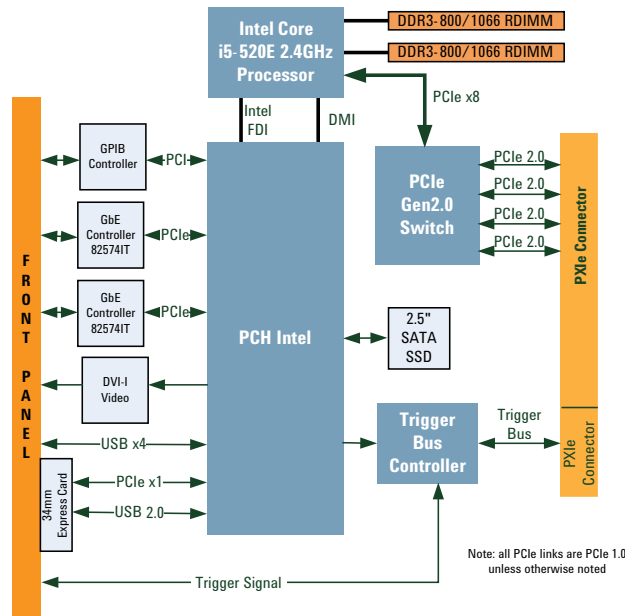


Figure 1. Agilent M9036A block diagram

Dual-core processor

The M9036A architecture is built on the Intel i5-520E dual-core processor. This processor utilizes the Intel Hyper-Threading Technology with a total of four simultaneous threads. Use a multi-tasking operating system, such as Microsoft Windows 7, to take full advantage of capabilities of this processor. The processor also utilizes the direct media interface (DMI) with 1 GB/s data bandwidth in each direction.

Memory

The M9036A has two 204-pin SODIMM memory sockets which support DDR3-800/1066 RAM. Each socket can support memory modules up to 4 GB for a total memory capacity of 8 GB. The standard configuration utilizes a single 4 GB memory module with an option to add a second 4 GB module.

Solid-state drive

A 160 GB solid state drive is included standard with the M9036A. This drive provides superior mechanical reliability compared to a conventional rotating hard drive.

Video

The DVI-I connector on the front panel supports both digital (DVI) and analog (VGA) monitors. When using an analog monitor, a DVI-to-VGA adapter is required (provided with the computer).

Peripheral I/O

The M9036A front panel contains connectors for USB 2.0, DVI-I video, Gigabit Ethernet, and GPIB. The computer also includes an ExpressCard/34 interface which provides I/O flexibility. This can be used to connect the embedded controller to a second Agilent M9018A chassis using the Agilent M9045A for example.

PXI trigger

The front panel contains a bi-directional trigger connector which can be used to route an external trigger signal to/from the PXI backplane.

PXle backplane configuration

The embedded controller utilizes a Gen 2 PCIe switch to provide a flexible backplane connection that can operate in either a 2- or 4-link configuration. When installed in the Agilent M9018A PXIe chassis and operating in a 2-link (2x8) configuration, it will enable x8 slots in the chassis to communicate peer-to-peer at Gen 2 speeds without involving the CPU itself. This PCIe backplane switch is also connected to the CPU via a Gen 1, x8 PCIe link. Therefore, data transfers to/from memory will operate at Gen 1 speeds.

Easy maintenance and support

The M9036A is easy to maintain or upgrade. The SSD and memory can be removed without removing the covers. The SSD also contains a recovery partition that can be used to restore the drive to the factory default conditions.

Software platform

The embedded controller supports Microsoft Windows operating systems and comes with the selected operating system installed. Agilent I/O libraries, including VISA, Agilent Connection Expert, and I/O monitor, are also pre-installed.

The external trigger is controlled with a driver or soft front panel which are also pre-installed on the computer.

TECHNICAL SPECIFICATIONS AND CHARACTERISTICS

General characteristics					
Controller characteristics					
CPU	Intel i5-520E dual-core				
CPU threads	4				
CPU clock frequency	2.4 GHz				
Chipset	Mobile Intel QM57Express				
Video	Integrated Intel graphics				
Type	DVI:1920x1200 (60Hz) or VGA: 2048 x 1536 (75Hz)				
Maximum resolution					
Memory	3 MB				
Cache	Two DDR3-800/1066 204-pin SODIMM sockets				
RAM type	4 GB standard, 8 GB optional, 8 GB maximum				
RAM capacity					
Storage	2.5" SATA II SSD				
Type	160 GB				
Size					
Operating system support	Windows 7® (32- and 64-bit)				
Pre-loaded software	Operating system, trigger driver, and Agilent I/O libraries				
Mechanical characteristics					
Dimensions	3U/3-slot PXI/CompactPCI standard				
Chassis slot compatibility	PXIe system module slot (with two or more controller expansion slots)				
Weight	1 kg (2.2 lbs)				
DC power requirements					
DC supply	+3.3 V	+5 V	+12 V	-12 V	+5 V _{AUX}
DC current requirements (<i>typ</i>)	0.72 A	0.54 A	0.9 A	0	0.11 A
DC current requirements (max)	0.75 A	0.76 A	2.81 A	0	0.12 A
Power dissipation (max)	40.6 W				
I/O characteristics					
Front panel connections					
USB	Four USB 2.0 (type A)				
Ethernet	Two 10/100/1000BASE-T (RJ45)				
Video	DVI-I (VGA with DVI/VGA adapter)				
GPIB	Micro-D 25-pin				
ExpressCard	ExpressCard 34 mm slot				
PXI trigger	SMB (programmable direction)				
PXIe backplane I/O					
PCIe link	2x8 or 4x4 (automatically configured based on chassis configuration)				
Configuration	2 GB/s max to/from the processor				
Data bandwidth	4 GB/s max between PCIe backplane links (2-link mode)				
PXI trigger bus	Selectable routing to/from all 8 PXI_TRIG lines				

TECHNICAL SPECIFICATIONS AND CHARACTERISTICS

Environmental characteristics ^{1,2}

Operating and storage conditions

	Operating	Storage
Temperature	0 °C to 55 °C	-20 °C to 70 °C
Humidity	Type-tested at 95%, +40 °C (non-condensing)	
Altitude	Up to 4600 m (15000 ft)	

Vibration

Operating random vibration: type-tested at 5 to 500 Hz, 0.21 g rms

Survival random vibration: type-tested at 5 to 500 Hz, 2.09 g rms

1. Samples of this product have been type tested in accordance with the Agilent Environmental Test Manual and verified to be robust against the environmental stresses of storage, transportation and end-use; those stresses include but are not limited to temperature, humidity, shock, vibration, altitude, and power line conditions.

2. Test methods are aligned with IEC 60068-2 and levels are similar to MIL-PRF-28800F Class 3.

Regulatory characteristics

Safety

Complies with European Low Voltage Directive 2006/95/EC

IEC/EN 61010-1, 2nd Edition

Canada: CSA C22.2 No. 61010-1-04

USA: UL std no. 61010-1, 2nd Edition

EMC

Complies with European EMC Directive 2004/108/EC

IEC/EN 61326-1

CISPR Pub 11 Group 1, Class A

AS/NZS CISPR 11

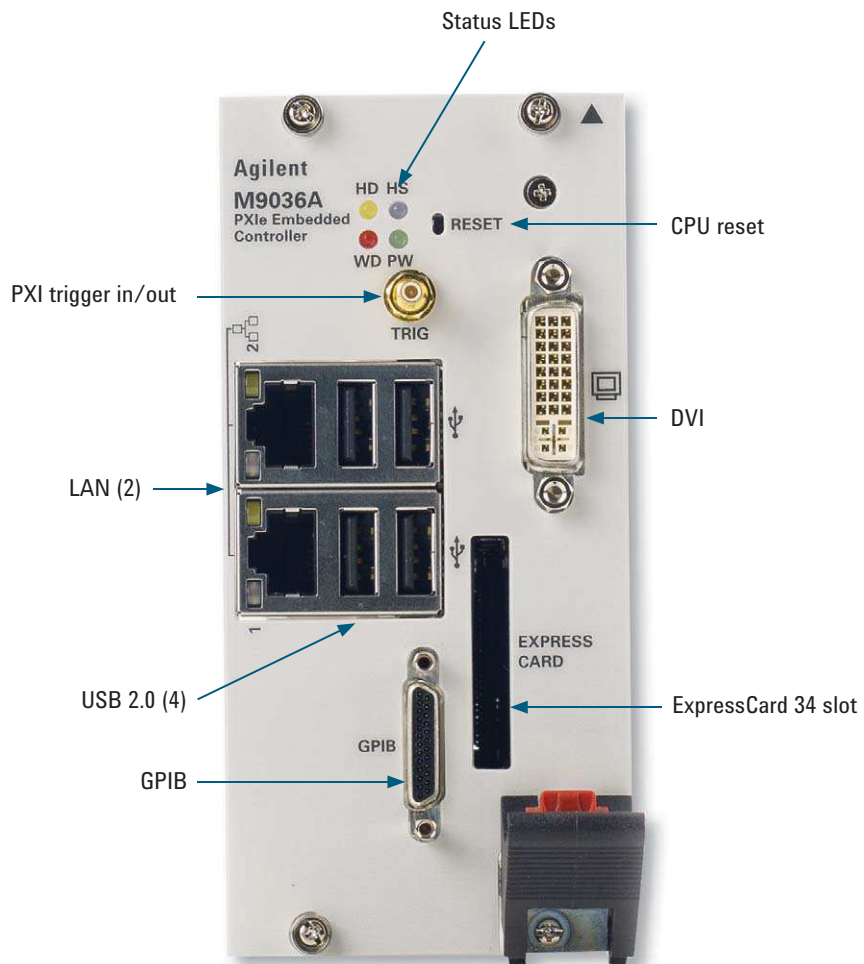
ICES/NMB-001

This ISM device complies with Canadian ICES-001. Cet appareil ISM est conforme

Cet appareil ISM est conforme a la norme NMB-001 du Canada

TECHNICAL SPECIFICATIONS AND CHARACTERISTICS

Front panel connections



CONFIGURATION AND ORDERING INFORMATION

Software information

Model	Description
Supported operating systems	Microsoft Windows® 7 (32/64-bit)
Standard compliant drivers	IVI-COM, IVI-C, LabView
Supported application development environments (ADE)	VisualStudio (VB.NET, C#, C/C++), LabVIEW, LabWindows/CVI, MATLAB
Agilent IO Libraries	Includes: VISA Libraries, Agilent Connection Expert, IO Monitor

Definitions for specifications

Specifications describe the warranted performance of calibrated instruments that have been stored for a minimum of 2 hours within the operating temperature range of 0 °C to 50 °C, unless otherwise stated, and after a 45 minute warm-up period. Data represented in this document are specifications unless otherwise noted.

Characteristics describe product performance that is useful in the application of the product, but that is not covered by the product warranty. Characteristics are often referred to as Typical or Nominal values.

- *Typical describes characteristic performance, which 80% of instruments will meet when operated over a 20 °C to 30 °C temperature range. Typical performance is not warranted.*
- *Nominal describes representative performance that is useful in the application of the product when operated over a 20 °C to 30 °C temperature range. Nominal performance is not warranted.*

Note: All graphs contain measured data from several units at room temperature unless otherwise noted.

Ordering information

Model	Description
M9036A	PXIe embedded PC controller
M9036A-M08	Memory upgrade from 4 GB RAM to 8 GB RAM
M9036A-W73	Windows® 7 operating system (32 bit)
M9036A-W76	Windows® 7 operating system (64 bit)

Related products

Model	Description
M9018A	18-slot PXIe chassis

Warranty

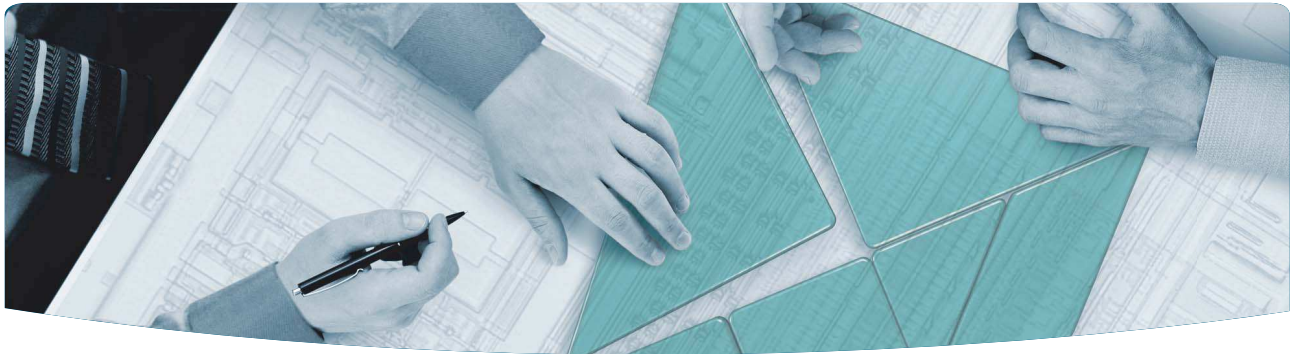
Advantage Services: Warranty

Agilent Advantage Services is committed to your success throughout your equipment's lifetime

R-51B-001-3C	1 year return-to-Agilent warranty extended to 3 years
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Figure 2. Accessories included with the M9036A



The Modular Tangram

The four-sided geometric symbol that appears in this document is called a tangram. The goal of this seven-piece puzzle is to create identifiable shapes—from simple to complex. As with a tangram, the possibilities may seem infinite as you begin to create a new test system. With a set of clearly defined elements—hardware, software—Agilent can help you create the system you need, from simple to complex.



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PXI www.pxisa.org

AXIe www.axiestandard.org

Agilent Channel Partners

www.agilent.com/find/channelpartners



Agilent Advantage Services is committed to your success throughout your equipment's lifetime.

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Product specifications and descriptions in this document subject to change without notice.

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