GE Fanuc Automation

RM675

Intelligent Dual 100BaseFX Ethernet

Incorporating state of the art technology, the RM675 sets a new standard for high performance data exchange. Two 100BaseFX Ethernet controllers are combined with a local RISC processor (PPC 400 MHz w/DDR memory) and PCI bridge system. The result is a very high performance, extremely flexible solution to a variety of data transfer requirements. Designed using standard protocols (100Mbit Ethernet and PCI), the RM675 is intrinsically economical, both in terms of direct unit cost and ability to utilize commodity LAN hubs and switches.

Product Features

- Onboard RISC co-processor
- Two 100FX fiber Ethernet ports
- Options for SC, ST or LC Fiber connectors
- Failover
- Embedded TCP/IP firmware
- PCI 64/66 MHz
- 64 Mbyte of DDR memory

Application Specific Intelligence

Users can add application specific functionality to the onboard firmware, migrating appropriate control into the RM675.

Local Intelligence

The onboard RISC processor allows the RM675 to be utilized in a wide range of applications. The most common use of this is "dual rail" access, where the choice of physical access is automatically switched by the RM675 "failover" firmware. In the RM675's simplest mode, all control can be kept in the system host with the RM675 providing dual Ethernet access. Other options include "embedded TCP/IP" which allows the host to offload the TCP/IP host processor.

Failover Firmware

Many applications have requirements for fault tolerance in the network connections. Some have traditionally used FDDI, which had dual physical connections, as part of the basic specification. FDDI has become end-of-life: both existing and new applications need a replacement. A GE Fanuc Embedded Systems IEC (Intelligent Ethernet Controller) with Failover (FOB) firmware is one solution, designed specifically as an evolutionary step that can be rapidly integrated into existing network systems. Running on one of the GE Fanuc Embedded Systems Intelligent Dual Ethernet cards (either copper or fiber media) there is an ACTIVE port (on which Ethernet activity takes place) and a BACKUP port (which maintains the Ethernet controller in a suspended state). If the ACTIVE port fails, the FOB firmware suspends this controller and activates the BACKUP controller. As all characteristics of the connection (e.g. MAC address) are maintained, no other machine on the LAN will be aware of this transfer. Transition occurs when a failure on the link is detected, either from physical indication or watchdog timeout. When responding to link errors the failover is very fast (<50 ms).

Integration with existing operating systems is easy, because the FOB firmware allows the IEC to appear as a single Ethernet device, which is consistent with the current standards. This is a critical issue as the network system is complex and generally not easy to modify. By having the IEC as a simple network controller, integration falls into a well defined, existing category.

Failover compatible drivers are available for the following: VxWorks®, HP-UX, Linux®, LynxOS®, QNX, Solaris® and Windows®.

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RM675 Specifications

Components
- PCI Bridge: Intel 21555
- Processor: IBM 440GP

Power Specifications
- Power (total): 5.5 watts
- @3 V: 0.9 amps
- @5 V: 0.6 amps

Ethernet Characteristics
- Ports: 2 x 100BaseFX
- Port routing: SC/LC/ST

PCI Bus Characteristics
- Signaling: 3 V and 5 V
- Specification: 2.1
- Speed: 33 MHz
- Width: 32

Form Factor
- Single slot PCI

MTBF
- MIL 217-F Nav Shel 25 Deg. C: 263,000 hours

Temperature
- Operating: 0 to +60 °C
- Storage: -40 to +85 °C

Humidity
- Operating: 5% to 95% noncondensing
- Storage: 5% to 95% noncondensing

Conformal Coating
- Yes, additional charge

Operating System Support
- Windows
- Linux
- VxWorks
- LynxOS
- Solaris

Warranty
- 3 years

Ordering Options

RM675LC-FWFOB	Dual fiber; LC connector; Ethernet controller; Failover firmware
RM675LC/S-FWFOB	Dual fiber; SC connector; Ethernet controller; Failover firmware/Solaris boc
-CC may be applied to any part to indicate conformal coating	

Media Kits

M-EFO-SEH-ARA	Failover driver for HP/UX
M-EFO-SEI-ARP	Failover driver for Linux (x86)
M-EFO-SEL-ARC	Failover driver for LynxOS (PPC)
M-EFO-SEL-ARP	Failover driver for LynxOS (x86)
M-EFO-SES-ARP	Failover driver for Solaris (x86)
M-EFO-SES-ARS	Failover driver for Solaris (SPARC)
M-EFO-SEV-ARC	Failover driver for VxWorks (PPC)
M-EFO-SEV-ARP	Failover driver for VxWorks (x86)

Linux (2.4.x, 2.6.x), Windows (XP, NT, W2K) supported by drivers from Intel (included in most distributions, available from the Intel web site). LynxOS 4.x supported by driver included in the distribution.

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GE Fanuc Embedded Systems Information Centers

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Edinburgh, UK 44 (131) 561-3520
Paris, FR 33 (1) 4324 6007

Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

www.gefanuc.com/embedded