



# product selection guide

SUMMER 2007



# Contents

Product Lifecycle Management	3	<b>I/O &amp; Communications</b>	
<b>Systems &amp; Enclosures</b>		Audio	42
Advanced Vehicle Computers	6	Graphics & Video	42
RES-110	7	Bus Adapters	43
Rugged Chassis	8	dataBLIZZARD	43
MAGIC1. A Small, Rugged Display Computer	9	PCI Express Expansion	44
Flat Panel Computers	10	PCI/PCI-X Expansion	44
Hazardous Area Computers	10	VMEbus Repeaters	44
Starter Cages	12	AdvancedTCA Carriers	45
Standard 19" Cages	12	Free Newsletter Subscriptions Available	45
Thin Client Systems	13	Carrier Cards	46
Sunlight Readable LCDs	13	Ethernet Interfaces	48
Industrial Flat Panel Monitors	14	1394B-3CPCI	49
Industrial Rackmount	14	Ethernet Switches	50
Signal Conditioners	16	Analog I/O	52
Data Acquisition Software	16	BCT4-AMC1	52
Digital Data Recorders	17	Digital I/O	53
Video Tracking & Image Processing	17	DSP-Based I/O	54
		Added security for network applications	54
<b>Single Board Computers</b>		Real Time Ethernet Networks	55
CompactPCI Intel	20	IndustryPack Modules	56
CompactPCI PowerPC	20	Serial I/O	58
VMEbus Intel	22	Telum NPA-38x4	58
Telum ASLP10	22	Other I/O	59
VPXcel SBC340	23	MicroTCA	59
AdvancedTCA-7820	23	Intelligent I/O Controllers	60
VMEbus PowerPC	24	InfiniBand Switches	60
VPX PowerPC	24	InfiniBand HCAs	60
Industrial PC	24	Fabric Interface	60
ProcessorPMC	25	Fibre Channel HBAs	61
		Reflective Memory	61
		Reflective Memory Hub	61
		Storage Controllers	62
		On-board Storage	62
		Telum GPSTC-AMC	63
<b>Sensor &amp; Signal Processing</b>		Telemetry Systems	62
AXIS Multiprocessing, DSP Tools & Libraries	28	WAN DS3/E3 Interfaces	63
AXIS DSP Tools & Libraries	28	WAN T1/E1/J1 Interfaces	63
Multiprocessors	29	WAN OC-3/OC-12 Interfaces	64
DSP230	29	WANic 608-SE	64
Sensor Processing: Acoustic	30		
daqNET Acoustic Data Conversion System	30	<b>Product Index</b>	<b>66</b>
Sensor Processing: Radio	31		
Software Defined Radio	31		
<b>Avionics</b>			
AFDX/ARINC 664	34		
ARINC 615 Data Loader	34		
Other Protocols	34		
ARINC 429	35		
Avionics IP Core	36		
Other Aerospace Products	36		
Data Bus Analyzers	37		
Selecting a Bus Analyzer	37		
MIL-STD-1553	38		
10MBit 1553	39		

# Why GE Fanuc Embedded Systems?

If you ask ten of our customers what makes GE Fanuc Embedded Systems a great supplier, you'll probably get ten different answers. And rightly so. The fact is that different customers have different priorities. So, as an embedded supplier, we cannot afford to be a one-dimensional company. We have to excel at a lot of different things.

## Quality Products

Delivering quality products is the highest priority of the company. For us, quality is not a theory that's up for debate. It's a given. And everyone in the company knows it. Under no circumstances will we compromise on this issue.

## Support

Nowadays, it's fairly common for computer companies to treat product support as a low priority, if they offer support at all. We take a completely different attitude. For us, support is a crucial element of our product offerings, and we have dedicated teams and proven processes in place to provide it.

## Product Selection

We go to great lengths to give our customers what they want to buy, rather than what we want to sell. Indeed, it is not uncommon for us to create a product from scratch to meet a customer need, or to modify one of our standard products to more closely match what our customers want.



## Financial Security and Stability

Customers who are designing products that will be in service for decades want to know that their suppliers are sound. In many cases, their products have to undergo rigorous tests and certification, and the last thing they want is to go through that whole process again with a new supplier.

## Advanced Technology

We are members of many industry organizations, and are closely engaged with other leading companies in the process of driving embedded technology forward. Our engineers sit on committees where new technologies are being defined. We are on the cutting edge of new technology developments because we help define the edge.

## Wisdom and Experience

We've been doing this a long time — which can be very comforting to customers who are exploring new products or applications. Having been through the development process so many times, we are often able to save our customers untold time and trouble just with a word of advice here or there.

## Imagination

Customers usually come to us with their ideas or their problems. In either case, imagination is the key to helping them. We must be able to understand their ideas and visions, to see what they see. And we must find a way to solve the puzzles and problems standing in the way of their new product or application. That's where our imagination comes in. GE Fanuc

Embedded Systems is a multifaceted company with a wide ranging product selection and a diverse staff of multi-talented people. But at the bottom of it we do one thing, which is to put our customers' needs at the top of everything we do.



## Product Lifecycle Management

Supporting a product for the life of a long-term military program presents major challenges for COTS suppliers. The commercial market, which drives COTS innovation, is characterized by diminishing product lifetimes. In stark contrast, military programs can have a lifetime measurable in decades. This dichotomy has created a critical requirement to protect customers from the impact of component obsolescence and, by doing so, reduce overall cost of ownership.

GE Fanuc Embedded Systems addresses the issue with our Product Lifecycle Management (PLM) programs. We take the implications of obsolescence into consideration at all product stages, from designed-in compatibility across generations of products, to a team of design engineers and support staff dedicated solely to supporting customers throughout a program's life.

We offer a range of specialized services, including product 'health checks' which provide customers with the assurance of proactive obsolescence monitoring. This

maximizes the time available to make program-critical decisions. State-of-the-art environmentally controlled storage facilities are available for either components or finished products, preserving them for future use.

GE Fanuc Embedded Systems also has dedicated repair facilities which include test and diagnostic equipment often found only in a product development environment. Skilled teams of technicians are dedicated to providing repairs and are focused on delivering the best possible RMA turnaround service.

All of these services are underpinned by the founding principle of our PLM model: preserving product knowledge, skills and facilities for as long as customer programs require them. So, when obsolescence strikes, we have the skilled engineering resource available to maximize the options available to you.

When you need to be proactive about the long-term support of your program, GE Fanuc Embedded Systems has the simple, flexible and effective solutions to meet your needs.





# systems & enclosures

Advanced Vehicle Computers . . . . .	6
Rugged Chassis . . . . .	8
Flat Panel Computers . . . . .	10
Hazardous Area Computers . . . . .	10
Starter Cages . . . . .	12
Thin Client Systems . . . . .	13
Industrial Flat Panel Monitors . . . . .	14
Industrial Rackmount . . . . .	14
Signal Conditioners . . . . .	16
Data Acquisition Software . . . . .	16
Digital Data Recorders . . . . .	17
Video Tracking & Image Processing . . . . .	17



# Advanced Vehicle Computers

Our rugged systems are designed to survive and thrive in harsh environments. They stand up to challenges like temperature extremes, shock, vibration, EMI and G-forces. Our engineering team can quickly create a customized design based on a standard system and board, or fully custom configuration. We also offer development support and engineering development units.

	Form Factor	Dimensions (mm) (H x W x D)	Weight in Pounds (kg)	Slots	CPU	Power Supply	Power Dissipation
AVC-cPCI 3000	cPCI 3U	88 x 248 x 304	8.2 (3.72)	3	(1) RL4	16-40 VDC, 65W	36W
AVC-cPCI 3001	cPCI 3U	220 x 286 x 345	32.6 (14.79)	14	(3) CM4	16-40 VDC, 300W	148W
AVC-cPCI 3002	cPCI 3U	220 x 286 x 345	30.5 (13.83)	14	(2) CM4	16-40 VDC, 300W	118W
AVC-cPCI 3003	cPCI 3U	127 x 222 x 222	10.8 (4.90)	6	(1) CM4	16-40 VDC, 100W	42W
AVC-cPCI 3004	cPCI 3U	220 x 286 x 345	28.6 (12.97)	7	(1) CM4	16-40 VDC, 150W	59W
AVC-cPCI 3005	cPCI 3U	127 x 222 x 222	10.2 (4.63)	6	(1) CM4	16-40 VDC, 100W	25W
AVC-cPCI 3006	cPCI 3U	220 x 286 x 345	27.2 (12.34)	14	(2) CM4	16-40 VDC, 300W	36W
AVC-cPCI 3007	cPCI 3U	127 x 222 x 222	11 (4.99)	6	(3) CM4	16-40 VDC, 100W	35W
AVC-cPCI 3008	cPCI 3U	127 x 222 x 222	10.5 (4.76)	6	(2) CR3	16-40 VDC, 100W	65W
AVC-cPCI 3009	cPCI 3U	127 x 222 x 222	9.5 (4.31)	6	CR3	16-40 VDC, 100W	59W
AVC-VME 6000	VME 6U	199 x 124 x 320	17 (7.71)	5	VR7	16-40 VDC, 300W	71W
AVC-VME 6001	VME 6U	199 x 124 x 320	12 (5.44)	5	VG4	16-40 VDC, 150W	45W
AVC-VME 6002	VME 6U	199 x 124 x 320	13.5 (6.12)	5	VG4, VR7	16-40 VDC, 150W	45W
AVC-VME 6003	VME 6U	199 x 124 x 320	14.5 (6.58)	5	VR7	16-40 VDC, 150W	45W
AVC-VME 6004	VME 6U	199 x 124 x 320	12 (5.44)	5	VR7	16-40 VDC, 150W	36W
AVC-VME 6005	VME 6U	199 x 124 x 320	11 (4.99)	5	VG5	16-40 VDC, 300W	300W
AVC-VME 6009	VME, VME 6U	215 x 268 x 415	33 (14.97)	10	VG5	300 Watts	160W
MAGIC1	VPX		3.5 (1.58)	2	Intel® or PowerPC® based	115VAC 1-phase	
ROC	Custom, Other, PMC	82.55 X 171.45 X 114.3	5.75 (2.61)	Variable	Custom PowerPC®-based, PSL09	18-36 VDC, 100W	34 to 59W



### Compatible I/O

HSS-PMC-CC, DIO1-cPCI3U-CC, PMC2CC-D

(2) HSS-cPCI-CC, (2) DIO2-cPCI3U-CC, (2) DIO3-cPCI3U-CC, 1394-cPCI3U-CC, Fibre Channel, ABI-PMC2, (2) 8-port Ethernet hubs, GPS, Dual power supply

(2) HSS-cPCI3U-CC, (2) DIO2-cPCI3U-CC, (2) DIO3-cPCI3U-CC, (2) 3101-BP-CC-XT, ABI-PMC2-1, (2) 8-port Ethernet hubs, GPS, Dual power supply

CM4, DIO4-cPCI3U-CC, ABI-PMC2-2, A429-PMC2CC-8R8T, (2) HSS-cPCI3U-CC. Designed to support 1394 Firewire, additional CM4, and ABI-PMC2-2.

CM4, HSS-cPCI3U-CC, DIO2-cPCI3U-CC, DIO3-cPCI3U-CC, ABI-PMC2-1

Fibre Channel, DIO4-cPCI3U-CC, HSS-cPCI3U-CC; Designed to support 1394 Firewire, A429-PMC2CC-8T8R, ABI-PMC2-2, additional CM4 and HSS-cPCI3U-CC

DIO1-cPCI3U-CC, (2) PMCCC-4T P, 8-Port Ethernet hub, Dual power supply; Designed to support 4 additional CM4, 3 additional DIO1, 4 additional PMCCC-4T

HSS-cPCI3U-CC, ESW-cPCI 8-Port Ethernet hub

1553-CPC3-2F, and 1553-CPC3-2S with third party HSS PMC, (2) SBS cPCI carriers, (2) Sentiris PMC Video Processors

(2) 1553-CPC3-1S, (2) SBS cPCI carriers, (2) TS-PMC A40 Video Processors

ABI-V6CC-2, HSS-PMC-4, VME Flash SCSI Card, VME Plug-in power supply

VG4, Sentiris Graphics PMC. Designed to support additional A429-PMC2CC-8R8T, ASF-V6CC-2, and VME Flash Memory Module.

HSS-PMC-CC, and Integrated conduction cooled power supply; Designed to support additional A429-PMC2CC-8R8T, ASF-V6CC-2, and VME Flash Memory module

VR7, (2) ASF-V6CC-2, and Integrated Conduction Cooled Power Supply. Designed to support additional A429-PMC2CC-8R8T, ASF-V6CC-2, and VME Flash Memory Module.

VR7 and custom-designed I/O, Integrated Conduction Cooled Power Supply

Custom designed I/O - Consult us; VME Plug-in conduction cooled power supply

ASF-PMC2CC, HSS-PMC-CC, PIO-PMC1, G2 Graphics PMC



## RES-110

RES-110 is a Layer 2 and Layer 3 (routing) managed Gigabit Ethernet switch in a rugged, self-contained chassis. It is a true COTS answer to the challenge of providing low-cost, high density networking within an integrated system where interface flexibility, physical robustness, weight and space are critical considerations.

The RES-110 is a stand-alone switch. The embedded processor performs all Layer 2 and Layer 3 management functions with no host CPU intervention. Switch management can be performed through a serial RS-232 interface using CLI or an in-band Ethernet interface using Telnet, HTTP or SNMP. The RES-110 is powered by a 28V power supply designed to MIL-STD-704E with optional 50ms hold-up.

Built for rugged, heat-sensitive environments, the RES-110 is conduction cooled and conformal coated, supporting a temperature range of -40° to +71°C. It has two 128-pin series connectors and one 6-pin D38999 connector. Weighing just over 4 pounds, the RES-110 supports significant decreases in wiring harness weight and volume to substantially reduce build time. With its enhanced protection from heat and environmental contaminants, the RES-110 is ideal for military applications such as avionics, radar and harsh environment networking.

- Lightweight – under 4.3 lbs
- 10 managed 10/100/1000BaseTX ports
- Compact package, 10.072" x 7.323" x 2.598"
- In-Band and RS-232 port management
- Extensive Layer 2 / Layer 3 protocol support
- Proven Ethernet switch design
- High reliability

The RES-110 design is a development of our RIU-1000 and CP3 products and represents the first of a new design for remote Ethernet switches. The RIU concept was originally developed for vehicle management systems applications. Combining these proven product designs with a MIL-STD-704E power supply, input filter modules, and enhanced protection from heat and environmental contaminants, the RES-110 is an ideal match for many military applications.

## Rugged Chassis

Our rugged chassis are designed for severe environmental conditions and they are often developed based on customer requirements. The following selection reflects only a partial listing of our rugged chassis capabilities. Please contact us with specific requirements.

	Form Factor	Slots	Dimensions (mm) (H x W x D)	Backplane	Cooling	Power Supply
1/2ATRS-0	1/2 ATR	5	193 x 124 x 336	VME64	Conduction Cooled with forced air through plenum	115VAC 1-phase, 28VDC
1/2ATRS-B	1/2 ATR	5	194 x 124 x 348	VME64	Conduction Cooled through baseplate	115VAC 1-phase, 28VDC
1/2ATRS-F	1/2 ATR	5	193 x 124 x 336	VME64	Conduction Cooled with blown air sidewalls	115VAC 1-phase, 28VDC
1/2ATRS-S	1/2 ATR	5	194 x 124 x 336	VME64	Conduction Cooled through sideplate	115VAC 1-phase, 28VDC
1ATRL-0	ATR	15	194 x 257 x 515	CompactPCI®, VME64	Conduction Cooled with forced air through plenum	115VAC 1-phase, 28VDC, 3-phase
1ATRL-B	ATR	15	194 x 284 x 348	CompactPCI®, VME64	Conduction Cooled through baseplate	115VAC 1-phase, 28VDC, 3-phase
1ATRL-F	ATR	15	193 x 257 x 515	CompactPCI®, VME64	Conduction Cooled with blown air sidewalls	115VAC 1-phase, 28VDC, 3-phase
1ATRL-L	ATR	15	193 x 257 x 515	CompactPCI®, VME64	Conduction Cooled with liquid cooled sidewalls	115VAC 1-phase, 28VDC, 3-phase
1ATRS-0	ATR	8	194 x 257 x 336	CompactPCI®, VME64	Conduction Cooled with forced air through plenum	115VAC 1-phase, 28VDC, 3-phase
1ATRS-B	ATR	8	194 x 284 x 348	CompactPCI®, VME64	Conduction Cooled through baseplate	115VAC 1-phase, 28VDC, 3-phase
1ATRS-F	ATR	8	193 x 257 x 336	CompactPCI®, VME64	Conduction Cooled with blown air sidewalls	115VAC 1-phase, 28VDC, 3-phase
1ATRS-L	ATR	8	193 x 257 x 337	CompactPCI®, VME64	Conduction Cooled with liquid cooled sidewalls	115VAC 1-phase, 28VDC, 3-phase
3/4ATRS-0	3/4 ATR	8	192 x 321 x 194	CompactPCI®, VME64	Conduction Cooled with forced air through plenum	115VAC 1-phase, 28VDC, 3-phase
C1ATRL	ATR	12	296 x 257 x 497	CompactPCI®, VME64	Convection Cooled with forced air over boards	115VAC 1-phase, 28VDC, 3-phase
C1ATRS	ATR	5	194 x 257 x 321	CompactPCI®, VME64	Convection Cooled with forced air over boards	28VDC, 85-264VAC 1-phase 47-440Hz
C3/4ATRL	ATR	8	273 x 191 x 496	CompactPCI®, VME64	Convection Cooled with forced air over boards	28VDC, 85-264VAC 1-phase 47-440Hz
RC	19 inch rackmount	20	9U	VME64	Integral Fan	28VDC, 85-264VAC 1-phase 47-440Hz
RCBC03 F3CD 1G	cPCI	3	150 x 100 x 337	CompactPCI®	Conduction Cooled	28 VDC conduction cooled
RCBC03 F3CD 2G	cPCI	3	87.1 x 247.7 x 304	CompactPCI®	Conduction Cooled	28 VDC conduction cooled
RCC	19 inch rackmount	15	8U	VME64	Integral Fan	28VDC, 85-264VAC 1-phase 47-440Hz
RCCC03 F6VD 1G	VME 6U	3	268 x 135 x 330	VME	Air & Conduction Cooled	28 VDC conduction cooled
RCFA17 R6xA 1G	cPCI 6U, VME 6U	Variable	432 x 400 x 450	CompactPCI®, VME	Convection	400 Watts
RCFC07 F6VA 1G	cPCI, VME	7	200 x 300 x 400	CompactPCI®, VME	Conduction Cooled	3-phase 115 VAC / 400 Hz
RCFC08 A6VD 1G	VME	8	298 x 209 x 494	VME	Conduction Cooled	16 -32 VDC
RCFC12 A6VA 1G	VME	12	298 x 209 x 494	VME	Air & Conduction Cooled	400 Watts
RCH	19 inch rackmount	5	5U	VME64	Integral Fan	28VDC, 85-264VAC 1-phase 47-440Hz

	Form Factor	Slots	Dimensions (mm) (H x W x D)	Backplane	Cooling	Power Supply
RCOM05	cPCI 6U, VME 6U	5	295 x 160 x 248	CompactPCI®, VME	Conduction Cooled	
RCOM05-ATR-6V	Other	5	124 x 321 x 194	CompactPCI®, VME	Conduction Cooled	
RCOM06	cPCI 3U	6		CompactPCI®, VME	Conduction Cooled	
RCOM10	cPCI 6U, VME 6U	10	298 x 212 x 340	CompactPCI®, VME	Conduction Cooled	
RT4-001CPCI	3U	4	132 x 124 x 255	CompactPCI®	Conduction Cooled through baseplate	115VAC 1-phase, 28VDC

## MAGIC1. A Small, Rugged Display Computer

The MAGIC1 Rugged Display Computer from GE Fanuc Embedded Systems brings the latest desktop performance technology and unprecedented graphics performance to the rugged marketplace. With an Intel® Core™ Duo® and NVIDIA® G73 connected by 16-lane PCI Express™, the MAGIC1 is capable of driving the most demanding visual applications.

The processing node consists of an Intel T2500 Core Duo CPU running at 2.0 GHz with 2 Mbytes of L2 cache. System memory is made up of two banks of dual data rate DDR2 SDRAM, with capacity up to 4 GBytes.

The graphics processing node is based on the dual channel NVIDIA G73 GPU incorporating 256 Mbytes of GDDR3 SDRAM arranged in two banks. The MAGIC1 features dual channel video output and supports multiple video standards including DVI, VGA and TV.

Storage is provided by a solid state disk drive, with a capacity of up to 64 GBytes, sustained read performance of 45 Mbytes/second, and a purge facility to allow data on the drive to be securely deleted in an emergency.

The MAGIC1 Rugged Display Computer is packaged in a base-plate cooled chassis, capable of operating in the harsh environments demanded by military and aerospace customers.



## Flat Panel Computers

Flat panel displays range from 6.4" through 21" with touch screens for operator input. Intel® Pentium® class systems or Thin Client systems are available in a range of mechanical configurations with various agency approvals for environmental conditions.

	Display	Touchscreen	CPU
DisplayPac-OPR-12	12.1" 800x600 256k color, 340 nit	5-wire resistive, serial	Socket 478 Intel® Pentium® 4 CPU up to 2.8 GHz
DisplayPac-OPR-15	15.1" 1024x768 256k color, 250 nit	5-wire resistive, serial	Socket 478 Intel® Pentium® 4 CPU up to 2.8 GHz
DisplayPac-OPR-17	17" 1280x1024 16.7M color, 250 nit	5-wire resistive, serial	Socket 478 Intel® Pentium® 4 CPU up to 2.8 GHz
DisplayPac-OPR-19	19" 1280x1024 256k color, 250 nit	5-wire resistive, serial	Socket 478 Intel® Pentium® 4 CPU up to 2.8 GHz
DisplayPac-PPCR	15.1" 1024x768 256k color, 250 nit	5-wire resistive, serial	Socket 478 Intel® Pentium® 4 CPU up to 2.8 GHz
SealTouch-15	15" 1024x768 256k color AMTFT LCD	Resistive	1.5 GHz Celeron® processor
Intelligence IPC	12.1" 800x600 AMTFT LCD, 15" 1024x768 AMTFT LCD 17" 1280x1024 AMTFT LCD	5-wire resistive, serial	512 MB, Standard 1.3 GHz Intel® Celeron® M Performance 1.6 GHz Intel® Pentium® M processor
MPAC-10	10.4" 640x480 color AMTFT LCD	Infrared	486DX-based SBC
Open Frame Computers	6.4", 8.4", 10.4", 12.1", 15.1", 17", or 19"	Infrared (Optional), Resistive (Optional)	Up to 1 GHz Pentium® M up to 1.8 GHz
PAC-MMS	15.1" 1280x1024 true color active matrix display	5-wire resistive	Intel® Pentium® III up to 1 GHz
Panel C	15" 1024x768 256k color AMTFT LCD	Resistive	1 GHz Intel® Pentium® III and 133 MHz processor front-side bus

## Hazardous Area Computers

Our backlighting technologies, controls design and packaging are highlights of our hazardous area products. Our products operate wherever hazardous materials such as gases or powders may be present. Certifications include ATEX, NEC 508, Class I Division 1, Ex, CE, CENELEC and IEC. If your computers must function in a hazardous area, please call us for help with your current projects.

	Display	Touchscreen	CPU	Memory	Ethernet	Expansion Slots	Hazardous Area	Notes
Wolverine	15" 1024x768 256k color AMTFT LCD, Sunlight Readable	Acrylic-on-Glass Resistive	1.8 GHz Intel® Pentium® M processor	Up to 2 GB DDR SDRAM	Up to two onboard 10/100BaseT	PCMCIA with field access		Heaters (optional)
PAC-Xscale-12-HZ	12.1" 800x600 32k color AMTFT LCD	Resistive	Intel® Xscale®	256 MB or 512 MB SDRAM DIMM	10/100BaseT	12.1": Two PCI; 15": Three PCI; 17": Three PCI		
PAC-Xscale-HZ*	5.7" 320x240 256k color* AMTFT LCD	Resistive	Intel® Xscale®	32 MB SDRAM (up to 96 MB); 32M Flash; 512K NV RAM	10BaseT / 100BaseTX (auto-detect / auto-switch), Full/Half-duplex, auto-select, One port 10/100 Mbits/sec	One slot	CE mark; ATEX-Class I Zone 2; NEMA 4/4X/12, UL Class I, Division 2, Groups A, B, C, D;	O/S: Microsoft® Windows® CE.NET

\*Video hardware/firmware limits to 65k colors



Memory	Ethernet	Expansion Slots	Certifications	Notes
One 184-pin DDR socket, up to 1 GB	10/100BaseT	Two PCI	CE, FCC, NEMA 12	Heavy-duty steel enclosure
One 184-pin DDR socket, up to 1 GB	10/100BaseT	Two PCI	CE, FCC, NEMA 12	Heavy-duty steel enclosure
One 184-pin DDR socket, up to 1 GB	10/100BaseT	Two PCI	CE, FCC, NEMA 12	Heavy-duty steel enclosure
One 184-pin DDR socket, up to 1 GB	10/100BaseT	Two PCI	CE, FCC, NEMA 12	Heavy-duty steel enclosure
One 184-pin DDR socket, up to 1 GB	10/100BaseT	Two PCI	CE, FCC, UL	Fire-proof plastic enclosure
512 MB DDRAM	10/100BaseT		NEMA 4, CE, UL 508	Rugged display with mounting options
256 MB or 512 MB SDRAM DIMM	10/100 BaseT	12.1": Two PCI; 15": Three PCI; 17": Three PCI	CE, Class I, Division 2, NEMA 4 front IP65, UL 1604	Rugged PC with system integration features
4 MB RAM; 2 MB DiskOnChip	10/100 BaseT			Meets EMI/EMC Requirements of MIL-STD-461C/D
Up to 512 MB PC100 SDRAM	10/100 BaseT	PISA bus expansion available; 2- or 4-slot PCI/ISA expansion (optional)	NEMA 4/12	Ultra-HiBrite LCDs available
Up to 256 MB SDRAM	10/100BaseT	2 PCI and 2 ISA (mechanically shared)	NEMA 12 front surface	12.1" 800x600 active matrix LCD (optional)
128 MB RAM (expanded to 512 MB) single DIMM slot	10/100 BaseT	One PCI and one PCI/ISA	CE, Class I, Division 2, IP65 (panel mount), NEMA 4/12, NEMA 4X front, UL	



## Starter Cages

Starter cages or starter kits are preconfigured enclosures designed for development purpose. We can provide the appropriate development system for your specific needs based on both Intel® or PowerPC® system architectures and cPCI or VME bus systems. Starter cages are sold only in conjunction with our single board computers. Please contact our sales team for details.

	Form Factor	Height	Slots	Backplane	Fans	Power Supply	CD-ROM	Hard Disk	Floppy	I/O Transition Module	Controller
CSC - 3U	cPCI 3U	3U	5	cPCI 3U	2	300 Watts		Optional	(none)	Yes	Selectable
CSC - 6U	cPCI 6U	6U	5	cPCI	2	300 Watts	(none)	(none)	(none)	Yes	Selectable
RDS10	cPCI, VME		10	cPCI, VME		100-240VAC, 400W					
RDS5	cPCI, VME		5	cPCI, VME		100-240VAC, 400W					
SC	cPCI, VME	7U and 4U	Variable	cPCI, VME	Variable	250 Watts	Optional	Optional	Optional	Yes	Not applicable
SCC	cPCI, VME	4U or 7U	Variable	cPCI, VME	3	250 Watts, 500 Watts	Optional	1	Depends on starter cage	Yes	Selectable
SCC484TXXX	3U cPCI	4U	4	Standard cPCI	3	250 Watts				1	RL4, LM4
SCC484TXXX	3U cPCI	4U	8	Standard cPCI	3	250 Watts	1	1	1	1	CL7, CC7
SCC784TXXX	6U cPCI	7U	8	Standard cPCI	3	250 Watts	1	1	1	1	CT8, CT7, CP7, CR6, CR7
SCC484TXXX	3U VME	4U	9	VME	3	250 Watts	1	1	1	1	VC7
SCC784TXXX	6U VME	7U	13	VME	3	250 Watts	1	1	1	1	VP7
SCC784TXXX	6U VME	7U	5	VME64	3	250 Watts	1	1	1	1	VR7, VG4
SCM	cPCI 6U	1U	2	cPCI	3	110 - 230 VAC, 16-40 VDC, 150W		Installed on SBC	(none)	Depends on selected SBC	Selectable



### Standard 19" Cages

GE Fanuc Embedded Systems offers a full selection of standard 19" card cages for CompactPCI®, VME and VME-64. Our cages come ready to run with AC power supplies and EMC shielding that complies with CE regulations. Reliable cooling fans are included, and the cages are designed for optimized airflow. They are available in heights ranging from 1 to 7U and with 2 to 13 slots. We also build standard and customized versions to meet specific application requirements. Please note that certain standard cages are only available for distribution in Europe. Contact the GE Fanuc Embedded Systems sales team for more details.

- Modular design, available in various height (1 - 7U) and width (2 v-13 slots) standards.
- Versions for VME, VME-64 and CompactPCI, EMC protected and rear I/O support.
- AC power supplies included, ready to run
- Reliable cooling and optimized airflow

## Thin Client Systems

Embedded systems typically operate a single application. Thin Clients allow them to execute centrally located programs at a remote location. They usually do not require the processing power our other industrial computer systems offer. Our Thin Client and Embedded Systems can help you reduce your system costs, while providing scalability and flexibility.

	Display	Touchscreen	CPU	Memory	Ethernet	Expansion Slots	Notes
PAC-Xscale	5.7" 320x240 256k color* AMTFT LCD	Resistive	Intel® Xscale®	32 MB SDRAM (up to 96 MB); 32M Flash; 512K NV RAM	10BaseT / 100BaseTX auto-detect / auto-switch, Full/Half-duplex, auto-select, One port 10/100 Mbits/sec	One slot	0° to +60° C operating temperature
PAC-Xscale-12	12.1" 800x600 32k color AMTFT LCD	Resistive	Intel® Xscale®	32 MB SDRAM (up to 96 MB); 32M Flash; 512K NV RAM	10BaseT / 100BaseTX auto-detect / auto-switch, Full/Half-duplex, auto-select, One port 10/100 Mbits/sec	One slot	Fieldbus support: AnyBus-S; Ethernet, Series 90-30 I/O, DeviceNet, Profibus, Genius, Modbus Plus

\* Video hardware/firmware limits to 65k colors

## Sunlight Readable LCDs

Ordinary touch screens cannot be used in direct sunlight or in uncontrolled lighting environments because a normal LCD will turn black when exposed to sunlight and UV radiation. To overcome this problem, GE Fanuc Embedded Systems adds a number of passive enhancements to maximize readability and allow LCDs to operate in direct sunlight.

The touch screen itself incorporates an anti-glare coating on its face, as well as an anti-reflective coating on the back and front of the LCD. The LCD also has a transfective backlight enhancement film. These coatings match the index of refraction to reduce light reflecting back at the viewer, increasing the contrast ratio and enhancing overall readability in bright lighting conditions. (See Figure 1)

Through the use of these special coatings, films, and filters, the unit achieves sunlight readability without additional backlights. The end result is 1000-nit equivalent viewing without the additional power draw and heat generation of more backlights. Consequently, the unit has a longer life, better processor performance, and a wider operating temperature range.

### Touch Screen: Acrylic-on-Glass Resistive

Designing a touch screen that will function in a rugged environment is no simple matter. GE Fanuc Embedded Systems designs screens with laminated construction and strengthened glass that offer resistance to high impact forces and that withstand significant shock and vibration in extreme

environments. At the same time, these screens provide up to 87% light transmission and as low as 6% low light reflection. Our screens also excel in harsh environments by allowing for a UL50, Type 4 seal (when properly integrated) and certification for hazardous locations.

Perhaps most importantly, for oil and gas exploration and extraction operations, these rugged touch screens function with a variety of gloves and can accept inputs through a range of contaminants. (See Figure 2)

Screen brightness increased by reflecting sunlight and utilizing backlights

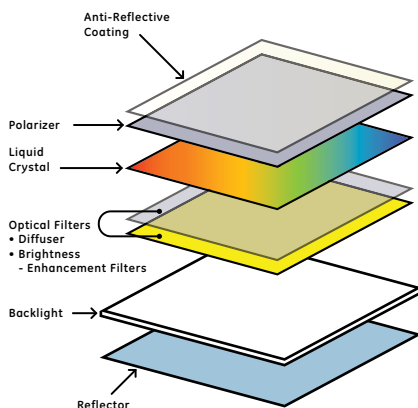


Figure 1: SLR LCD: Passive Enhancements

- Anti-glare casting on touch screen face
- Anti-reflective coatings on touch screen back and LCD front: matches index of refraction to reduce light reflecting back at the viewer — increases contrast ratio
- IR blocking film added to reduce thermal loading effects of the sun
- Transfective backlight enhancement film (BEF)

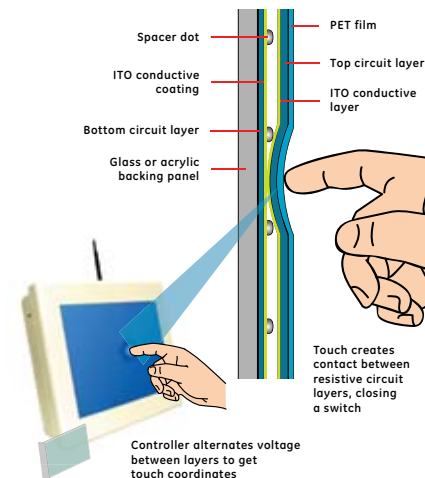


Figure 2: Acrylic-on-Glass Touch Screen

- Laminated construction with strengthened glass increases resistance to high impact forces
- Up to 87% light transmission and as low as 6% low light reflection
- Excels in harsh environments by allowing for a UL50, Type 4 seal (when properly integrated) and certification for hazardous locations
- Functions with a variety of gloves through a range of contaminants
- Withstands significant shock and vibration in extreme environments

## Industrial Flat Panel Monitors

Our flat panel monitors give you the advantages of a flat panel operator interface with almost any video signal, including standard RGB, Synch-on-Green (SOG), Composite Synch, NTSC and PAL. We offer flat panel systems ranging from 6.4" through 30" available as open-frame solutions or with a variety of enclosure and mounting options.

	Display	Contrast Ratio	PC Interface
Balefire	15" 1024x768 AMTFT LCD, 16.7M colors, sunlight readable	300:1	XGA, Standard RGB video source
Open Frame Monitors	6.4", 8.4", 10.4", 12.1", 15.1", 17", or 19"	120:1 (6.4"), 180:1 (10.4"), 200:1 (8.4"), 300:1 (12.1"), 350:1 (15"), 500:1 (17", 19")	OSD (auto-saving), Standard analog RGB (NTSC / PAL / S-Video / DVI / Composite video signals optional), VESA DDC1/2B
Sentinel Series	15", 19", or 21" color AMTFT LCD		VGA, SOG, NTSC, RS170, PAL, S-video, and DVI.
Sentinel-10	10.4" 800x600 color AMTFT LCD	500:1	RS-343A video sources with either RGBHV or SOG
VAMP-LMV10	10.4" 640x480 color AMTFT LCD		Standard VGA 640x480 analog video signals
VAMP-SlimVista	15", 17", or 19" color AMTFT LCD	350:1 (17", 15"), 500:1 (19")	VGA/SVGA/XGA analog input
VAMP-WN Series	6.4", 8.4", 10.4", 12.1", 15.1", 17", or 19"	120:1 (6.4"), 180:1 (10.4"), 200:1 (8.4"), 300:1 (12.1"), 350:1 (15"), 500:1 (17", 19")	OSD (auto-saving), Standard analog RGB (NTSC / PAL / S-Video / DVI / Composite video signals optional), VESA DDC1/2B

## Industrial Rackmount

Custom configure a variety of enclosures and other hardware to your requirements. Our systems are designed for high volume users in demanding mission critical applications, and are available with active and passive PCI Bus backplanes that support legacy ISA cards. Options range from small 2-4 slot systems to 4U and higher rackmount systems.

	Dimensions (mm) (H x W x D)	CPU	Memory	PC I/O	Backplane
ES10	445 x 433 x 521				VME
ES20	445 x 433 x 521				VME
ES5	178 X 433 x 521				VME
Nd-M17-KB	43.18 x 482.6 x 515.11 19" Rackmount, 1U				
Nd60501	400 x 235 x 158	1.2 GHz Pentium III or 2.4 GHz P4 PICMG slot CPU	Up to 2 GB of SDRAM	10/100BaseT Ethernet; dual channel IDE; four USB ports; one PS/2, one serial, and parallel port	6-Slot with 4 ISA, 1 PCI and 1 PICMG slots
Nd61400 / Nd61220	450 x 482.6 x 177 Rackmount 2U or 4U	1.2 GHz Pentium III or 2.4 GHz P4 PICMG slot CPU	Up to 2 GB of SDRAM	10/100BaseT Ethernet; dual channel IDE; four USB ports; two serial ports; one parallel port; one PS/2	14-Slot with 8 ISA, 4 PCI and 2 PICMG slots
ThinView-WN-RM	15", 17", 19" LCDs				



Signal Connector

Touchscreen

Notes

CATS transfers video and keypad through a KVM extender module		MIL-STD-801E, Method 506.4, Procedure I (Rain and Blowing Rain), Method 507.4
VGA	Capacitive, Resistive, Surface Acoustic Wave (all are optional)	Ultra-HiBrite displays available 700 to 1,000 nit
VGA, DVI, NTSC	Resistive (Optional)	MIL-S-901D, MIL-STD-167-1, MIL-STD-801E, MIL-STD-461E
VGA	Infrared	MIL-S-901D, MIL-STD-167-1, MIL-STD-461E, MIL-STD-740-1, MIL-STD-740-2, MIL-STD-461/462, MIL-STD-810, MIL-STD-108, DOD-STD-1399
VGA	5-wire analog resistive touchscreen overlay	12 VAC power supply
VGA	Resistive	UL, CE, FCC approvals
VGA	Capacitive, Resistive, Surface Acoustic Wave (all are optional)	Ultra-HiBrite displays available 700 to 1,000 nit; Panel and rackmount options



Cooling

Expansion Slots

Notes

Slots

Power Supply

Form Factor

Air Cooled			10	600W, 94-240VAC	VME
Air Cooled			20	600W, 94-240VAC	VME
Air Cooled			5	250W, 94-240VAC	VME
		FCC-A, CE, UL approvals		100-240 VAC	
One 9 cm ball-bearing fan (51CFM/each) with a removable filter	6-slot backplane	0° to +50° C operating temperature		100-240 VAC	
78CFM fan with a removable filter	14-slot backplane	0° to +50° C operating temperature		100-240 VAC	
		Rackmount flat panel monitors; Ultra-HiBrite displays available		100-240 VAC	

## Signal Conditioners

Our signal conditioning systems are designed to ensure high performance and seamless interoperability with our DDR data acquisition systems and our Test Management software packages. Regardless of the number or type of sensors that you are using, we can offer a full signal conditioning solution which suits your budget.

	Channels	Conditioning	Programmable	Sensor Excitation	Input Connection	Form Factor
DSC-200-BNC	1, 8 or 16	Attenuation, Buffer, Frequency Divider, ICP, Isolation, Thermocouple		●	BNC, Various	1U, Portable
DSC-200-DSUB		Buffer			D-Sub	1U Rackmount
DSC-200-HV		Buffer			BNC	1U Rackmount
DSC-240-ICP		ICP			BNC	Portable
DSC-250 Thermocouple		5B, Thermocouple			BNC	Portable
DSC-280-FD		Frequency Divider			BNC	
DSC-290	16	Attenuation			BNC	1U Rackmount
DSC-1000-5B	8 or 16	5B, 5B Plus (Full Range), Filter, Gain, ICP, Strain Gage		●	MIL Circular, Various	Various, Ruggedized
DSC-1000-RCT	8 or 16	Filter, Gain, ICP, Strain Gage		●	MIL Circular, Various	4U
DSC-1110	16 or 32	Filter, Gain			BNC, Screw-In	1U
DSC-1150	16 or 32	Thermocouple			BNC, Screw-In	1U
DSC-1210	32	Filter, Gain, Thermocouple			BNC, Screw-In	2U
DSC-2210	32	Filter, Gain	●	●	BNC, Screw-In	2U
DSC-2220	32	Strain Gage	●	●	BNC, Screw-In	2U
DSC-2240	32	ICP	●	●	BNC, Screw-In	2U
DSC-2320	32	Strain Gage	●	●	BNC, D-Sub, Various	3U
DSC-2330	32	Charge Amplifier	●	●	BNC, D-Sub, Various	3U
DSC-2610	32	Filter, Gain, ICP	●	●	D-Sub	6U VME
DSC-3000	8	Charge Amplifier, Bridge, ICP	●	●	MIL Circular, Various	Ruggedized

## Data Acquisition Software

Our data acquisition software provides powerful configuration and control of any data acquisition system in a simple to use package for turn key operation. Ideally suited for the DDR line of data acquisition systems, the software also supports third party signal conditioning equipment, allowing for complete test control from a single software package.

	ADC Sample Rate	Signal Conditioning Control	Supports RAID Recording	Limit Checking and Derived Channel	Shunt Calibration	Voltage Insertion Calibration	Manual Data Set Calibration	User Interactive Programming
DSS-160	●	●	●	●	●	●	●	
DSS-660	●	●	●	●	●	●	●	●

## Digital Data Recorders

Our Digital Data Recorder systems can accommodate most budgets, from the flagship DDR-2000 to the economical DDR-16. Each DDR system is available with a variety of software options supporting standard data formats. Careful selection of commonly used, high quality PC hardware makes them reliable and easy to maintain.

	Data Rate	Channels	Remote Operation	Intelligent Triggering	Multi-DDR Synchronization	Form Factor
DDR-2001	400 MB/s	448		•	•	8U
DDR-2000	400 MB/s	576		•	•	5U
DDR-1000	50 MB/s	64		•	•	4U
DDR-1500	160 MB/s	64	•	•	•	Portable
DDR-200	160 MB/s	64	•		•	Portable
DSC-2000.NET	2 MB/s	256	•		•	3U
DSC-1000.NET	200 kb/s	256	•		•	1U



## Video Tracking & Image Processing

Our products and expertise are at the heart of advanced military video applications. Available in 6U VME and PMC format, our products can quickly add image processing to standard sub-system configurations. Typical functions include tracking, detection, fusion, stabilization, mosaic creation, enhancement, simulation, matching and synthetic target generation.

	Form Factor	Video Input Analog	Video Input Digital	Video Output	Control Interface	Serial Links
ADEPT33	3U VME	NTSC/RS170 and PAL/CCIR (60/50Hz)		RS170/CCIR	VME DC analog	3 RS232/422
ADEPT36	6U VME	1 of 2 RS170/CCIR	12-bit parallel	RS170/CCIR	VME DC analog	3 RS232/422
ADEPT60	6U VME	1 of 2 RS170/CCIR	16-bit parallel	RS170/CCIR	VME DC analog	4 RS232/422
ADEPT64	PCI	1 of 2 RS170/CCIR		RS170/CCIR	PCI	4 RS232/422
ADEPT104	PC-104	NTSC/RS170 and PAL/CCIR (60/50Hz)	Cameralink or hotlink, etc.	RS170/CCIR	PCI/ISA	4 RS232/422
AIM12	Stand-alone	NTSC/RS170 and PAL/CCIR (60/50Hz)	Cameralink or hotlink, etc.	RS170/CCIR	PCI	RS232/422
FUSION60	6U VME	1 of 2 RS170/CCIR	16-bit parallel	RS170/CCIR	VME DC analog	4 RS232/422
IMP16	PMC	2 RS170/CCIR		RS170/CCIR	PCI	
VDB30	6U VME	16 RS170/CCIR		16 RS170/CCIR	VME	RS232/422



# single board computers

CompactPCI Intel . . . . .	20
CompactPCI PowerPC . . . . .	20
VMEbus Intel . . . . .	22
VMEbus PowerPC . . . . .	24
Processor AdvancedMC . . . . .	22
AdvancedTCA . . . . .	23
VPX Intel . . . . .	23
VPX PowerPC . . . . .	24
Industrial PC . . . . .	24
ProcessorPMC . . . . .	25



## CompactPCI Intel

GE Fanuc Embedded Systems provides a comprehensive line of Intel®-based cPCI single board computers to the embedded board market. These products range from boards targeted to the unique needs of telecommunications and military applications to more general purpose boards that can be applied to a wide variety of embedded applications.

	Size (in Us)	System/ Peripheral	Processor Type & Speed	Maximum Memory	# PMC Slots	Bus Interface Chip
CR11	6U	Both	2.16 GHz Intel® Core™ 2 Duo, 2.0 GHz Intel® Core™ Duo	Up to 4 GB DDR2 SDRAM w/ECC	2	PLX PCI6466
CP11	6U	Both	2.16 GHz Intel® Core™ 2 Duo, 2.0 GHz Intel® Core™ Duo	Up to 4 GB DDR2 SDRAM w/ECC	2	PLX PCI6466
CT11	6U	Both	2.16 GHz Intel® Core™ 2 Duo, 2.0 GHz Intel® Core™ Duo	Up to 4 GB DDR2 SDRAM w/ECC	2	PLX PCI6466
CR5	3U	Both	1.66 GHz Intel® Core™ Duo LV	Up to 2 GB DDR2 SDRAM	0	PLX 6254
CPCI-7808	6U	Both	1.3 GHz Intel® Celeron® M Processor, Intel® Pentium® M Processor up to 1.8 GHz	Up to 2 GB DDR SDRAM	2	HintHB6
CPCI-7806	6U	Both	1.3 GHz Intel® Celeron® M Processor, Intel® Pentium® M Processor up to 1.8 GHz	Up to 1 GB DDR SDRAM	2	Hint HB6
CR9	6U	Both	Intel® Pentium® M Processor up to 1.8 GHz	Up to 2 GB DDR SDRAM (200) w/ECC	1, 2	PLX 6254
CP9	6U	Both	Intel® Pentium® M Processor up to 1.8 GHz	Up to 2 GB DDR SDRAM (200) w/ECC	1, 2	PLX 6254
CL9	3U	System	600 MHz Intel® Celeron® processor Low Power, Intel® Pentium® M Processor up to 1.8 GHz	Up to 1 GB DDR SDRAM (333)	0	TI PCI2050B
CT9	6U	Both	Intel® Pentium® M Processor up to 1.8 GHz	Up to 2 GB DDR SDRAM (200) w/ECC	1, 2	PLX 6254
CR4	3U	Both	Intel® Pentium® M Processor up to 1.4 GHz	Up to 512 MB SDRAM w/ECC	0	PLX 6254
CR3	3U	Both	400-650 MHz, Ultra Low Voltage Intel® Celeron® processor	128 MB SDRAM	0	PLX 6254
CPCI-7506	3U	System	1.3 GHz Intel® Celeron® M Processor, Intel® Pentium® M Processor up to 1.8 GHz	Up to 1 GB DDR SDRAM	none	PLX 6150

## CompactPCI PowerPC

GE Fanuc Embedded Systems PowerPC®-based cPCI boards are designed for use in a broad spectrum of applications from military and aerospace to commercial and telecommunications systems. They are available with diverse feature sets to accommodate the unique requirements of demanding real-time applications.

	Size (in Us)	System/ Peripheral	Processor Type & Speed	Maximum Memory	# PMC Slots	Bus Interface Chip
C2K	6U	Both	Freescape™ 7447A/7448	Up to 1 GB DDR SDRAM (333)	2	Marvell® MV64460
CPCI-7055RC	6U	Both	IBM 750FX PowerPC® (733 MHz) and IBM 750GX PowerPC® (800 MHz and 1.0 GHz)	Up to 2 GB DDR 400 SDRAM w/ECC	2	Hint HB6
PowerPact6 CP1A	6U	Both	1.4 GHz Freescape™ 7448	Up to 512 MB DDR SDRAM with ECC	2	PLX 6254
CV1	3U	Both	Freescape™ 7447A G4 PowerPC (up to 1 GHz)	Up to 256 MB SDRAM w/ECC	1	PLX 6254
PowerPact3 IMP2A	3U	Both	1.4 GHz Freescape™ 7448	Up to 512 MB DDR SDRAM with ECC	1	Marvell® Discovery® III
PowerPact3 IMP1A	3U	Both	Freescape™ 755/7410 up to 500 MHz	Up to 128 MB SDRAM	1	Marvell® Discovery®
PowerPact3 IMPCC2	3U	Peripheral	266MHz Freescape™ PowerQUICC II 8270	32 MB SDRAM	1	PLX PCI6150
CK5	6U	Both	Freescape™ 7447A G4 PowerPC® (up to 1 GHz)	Up to 1 GB SDRAM w/ECC	2	PLX 6254
C7057RC	6U	Both	Freescape™ 7448 @ 1.4 GHz	Up to 1 GB DDR SDRAM w/ECC	2	Marvell® Discovery® III



Ethernet	Serial I/O	Rugged Options	Transition Modules	Notes
1 x 10/100 Front, 2x Gigabit Ethernet on the front (optional)	2	Cond. Cooled, Ext. Operating Temp., Rugged	CTM17	PICMG 2.16
1 x 10/100 Front, 2x Gigabit Ethernet on the front (optional)	2	Conv. Cooled, Ext. Operating Temp.	CTM17	PICMG 2.16
1 x 10/100 Front, 2x Gigabit Ethernet on the front (optional)	2	Conv. Cooled, Ext. Operating Temp.	CTM17	PICMG 2.16; Optional IPMI 1.5, PICMG 2.9
2x Gigabit Ethernet on the rear	2	Rugged	CR4-TM	
2x Gigabit Ethernet on front panel RJ45 or via the PICMG 2.16 backplane	2	Ext. Temp	VMIACC-0591	Single slot, 3x USB 2.0 ports, 2x serial ATA interfaces
2x Gigabit Ethernet on front panel RJ45 or via the PICMG 2.16 backplane	2	Ext. Temp	VMIACC-0584	IPMI support, Single slot, Serial ATA support
2x Gigabit Ethernet on the front (optional), 2x Gigabit Ethernet on the rear	2	Cond. Cooled, Ext. Temp, Rugged	CTM12	RoHS compliant with version 3.x, Single slot, compliant to: Packet switching backplane and hot swap
2x Gigabit Ethernet on the front (optional), 2x Gigabit Ethernet on the rear	2	Cond. Cooled, Ext. Temp, Rugged	CTM12	RoHS compliant with version 3.x, Single slot, compliant to: Packet switching backplane and hot swap
2x Gigabit Ethernet on the front	2	Ext. Temp	CTM15	Options of 4 HP or 8 HP front panel width variations, two Serial ATA on rear
2x Gigabit Ethernet on the front (optional), 2x Gigabit Ethernet on the rear	2	Conv. Cooled, Ext. Temp	CTM12	RoHS compliant with version 3.x, Single slot, compliant to: Packet switching backplane, hot swap, IPMI
2x Gigabit Ethernet on the rear	2	Cond. Cooled, Conv. Cooled	CR4-TM	
2x 10/100 Mb/s on the rear	2	Cond. Cooled	CR3-TM	Single slot, mouse/keyboard, Ethernet
2x Gigabit Ethernet with one channel routed to the front panel RJ45, and one routed to the rear I/O J2 connector	4	None	VMIACC-7506	Front panel mouse/keyboard port, 3x USB 2.0 ports, optional onboard IDE of serial ATA hard drive



Ethernet	Serial I/O	Rugged Options	Transition Modules	Notes
3x Gigabit Ethernet	8	Cond. Cooled, Conv. Cooled	C2K-TM	PICMG 2.16 compliant
3x Gigabit Ethernet	3	Commercial	VMIACC-7055	PICMG 2.16 compliant
2x Gigabit Ethernet on rear	6	5 ruggedization levels, air and conduction-cooled	CPC16UX600	AFIX site; 5x USB 2.0
2x Gigabit Ethernet on the rear	2	Cond. Cooled, Conv. Cooled	CV1-TM	
2x Gigabit Ethernet	2	5 ruggedization levels, air and conduction-cooled	CPC13UX600	128 MB Flash
2x 10/100 Mb/s	2	5 ruggedization levels, air and conduction-cooled	CPC13UX600	64 MB Flash
2x 10/100 Mb/s	4	1-3 rugged air-cooled; 4-5 rugged conduction-cooled	CPC13UX603	64 MB Flash memory
10/100 Mb/s	6	Cond. Cooled, Conv. Cooled	CK5-TM	Pin compatible upgrade to the CK3
Gigabit Ethernet on front panel RJ45	1	Commercial		On-board Reflective Memory

# VMEbus Intel

GE Fanuc Embedded Systems offers advanced VMEbus single board computers using the latest Intel or compatible processor technology. VMEbus technology is still dominant in many embedded board markets and has proven itself to be a stable technology that evolves with the needs of those markets.

	Size (in Us)	Processor Type & Speed	Maximum Memory	# PMC Slots	Bus Interface Chip
V7865	6U	2.16 GHz Intel® Core™ 2 Duo, 2.0 GHz Intel® Core™ Duo	Up to 3 GB DDR2 SDRAM	1	Tundra Tsi148
VR9	6U	Intel® Pentium® M Processor up to 1.8 GHz	Up to 2 GB DDR SDRAM (200) w/ECC	1, 2	Tundra Universe IID
VP9	6U	Intel® Pentium® M Processor up to 1.8 GHz	Up to 2 GB DDR SDRAM (200) w/ECC	2	Tundra Universe IID
VME-7807	6U	Intel® Pentium® M Processor up to 1.8 GHz	Up to 1.5 GB DDR SDRAM	1	Tundra Universe II
VME-7810	6U	Intel® Pentium® M Processor up to 1.8 GHz	Up to 4 GB PC 1600 DDR SDRAM	2	Tundra Universe II
INTrAXtreme IXT2B	6U	1.4 GHz Intel® Pentium® M	1 GB DDR SDRAM	1	Tundra Universe IID
SE0	6U	2.0 GHz Intel® Pentium® M	1 GB DDR2 SDRAM	0	Tundra Universe II
V5D	6U	1.4GHz Intel® Pentium® M Low Voltage	Up to 1 GB SDRAM w/ECC	0	Tundra Universe IID
V7809RC	6U	Intel® Pentium® M up to 1.8 GHz	Up to 2 GB DDR SDRAM	1	Tundra Universe II
VME-7700RC	6U	Intel® Ultra Low Voltage Celeron® up to 650 MHz	512 MB PC-100 SDRAM	1	Tundra Universe II
VME-7805	6U	2.2 GHz Intel® Pentium® 4 Processor - M	Up to 1 GB PC 2100 DDR SDRAM	1	Tundra Universe II
VME-7851	6U	2.2 GHz Intel® Pentium® 4 Processor - M	Up to 1 GB PC 1600 DDR SDRAM	3	Tundra Universe IIB



## Telum™ ASLP10

The Telum ASLP10 supports processors from 1 GHz up to 2 GHz and offers low power consumption which eliminates the need for on-board fans. The design is ready to accept future higher performance Intel® Pentium® M processors. It complies with AMC.0, AMC.1 Type 8 (PCI Express™), AMC.2 Type E2 (Gigabit Ethernet) and AMC.3 Type S2 (Serial ATA). It targets a broad range of applications such as wireless base stations, VOIP, enterprise devices, test and measurement systems, and server blade applications. The board is also available in an extended temperature version ranging from -40° C to +55° C.

- Single width, full height AMC.0 form factor
- Hot Swap compliant
- Carrier Grade Linux® Support
- Up to 2 GB DDR2 SDRAM (400MHz) with ECC
- Gigabit Ethernet
- IPMI ver.1.5 acc. to AMC.0
- One USB 2.0 port on front
- Watchdog, temperature sensor



Ethernet	Serial I/O	Rugged Options	Transition Modules	Notes
2x Gigabit Ethernet on the front	2	Extended Operating Temperature	ACC-0602, ACC-0603	Optional VITA 41.3 (VXS Ethernet)
2x Gigabit Ethernet on the front (optional), 2x Gigabit Ethernet on the rear	2	Cond. Cooled, Conv. Cooled, Ext. Temp, Rugged	VTM21	RoHS compliant with version 3.x, Single slot, compliant to VITA 31.1
2x Gigabit Ethernet on the front (optional), 2x Gigabit Ethernet on the rear	2	Conv. Cooled, Ext. Temp	VTM21	RoHS compliant with version 3.x, Dual slot front panel, extensive front I/O functions, compliant to VITA 31.1
10/100 Mb/s on front panel RJ45, 2x Gigabit Ethernet on the front (optional), 2x Gigabit Ethernet on the rear	4	Commercial	VMIACC-0586; VMIACC-0590	Front panel mouse/keyboard port; Compact Flash; Serial ATA support through P2 rear I/O; compliant to VITA 31.1
10/100 Mb/s on front panel RJ45, 2x Gigabit Ethernet on the front	2	Commercial	VMIACC-0562	Front panel mouse/keyboard port; Front Panel DVI-I video; Dual Channel Ultra320 SCSI
1 10/100; 2x Gigabit Ethernet to P0 for VITA 31.1	2	5 ruggedization levels, air and conduction-cooled		2x SATA; CompactFlash; 2x USB 2.0
One Gigabit Ethernet	2	5 ruggedization levels, air and conduction-cooled		SATA; 2eSST VMEbus
2x Gigabit Ethernet on the front	2	Commercial	VME-TB51	Up to three PMC sites available through TPMCC module
2x Gigabit Ethernet on the front	2	Commercial		Dual Channel Ultra320 SCSI, Front panel mouse/keyboard port
2x 10/100 Mb/s on front panel RJ45	2	Extended Operating Temperature		Front panel mouse/keyboard port; Compact Flash
10/100 Mb/s on front panel RJ45, Gigabit Ethernet on front panel RJ45	2	Commercial		Front panel mouse/keyboard port; Front panel DVI-I video
10/100 Mb/s on front panel RJ45, Gigabit Ethernet on front panel RJ45	2	Commercial		Front panel mouse/keyboard; Front panel DVI video; Optional dual channel Ultra160 SCSI

### VPXcel3 SBC340

VPX (previously known as VITA 46) brings switched fabrics to VMEbus-based systems. VPX was specifically created with the defense community in mind, and it retains the existing 6U and 3U form factors, supports existing PMC and XMC mezzanines, and maintains the maximum possible compatibility with VMEbus.

- 2.0 GHz Intel® Core™ Duo
- Up to 4 GB DDR2 SDRAM
- One Gigabit Ethernet
- Two Serial I/O
- Air and conduction cooled variants
- 2x PCI Express Ports (one 16-lane for graphics, one 4-lane for fabric connection)



### AdvancedTCA-7820

GE Fanuc Embedded Systems delivers all the benefits of the Advanced Telecom Computing Architecture (AdvancedTCA®) through our line of powerful single board computers. They offer processing power, modular flexibility, increased power budgets, high bandwidth and system management to equipment manufacturers who are building the next generation of telecom applications.

- Two dual-core Intel® Xeon® LV 2.0 GHz processors
- 2 MB of L2 cache
- Up to 4 GB DDR-2 400 SDRAM
- PICMG 3.1 Compliant
- AMC.1 Compliant site (single width, full height, 60W max.)



## VMEbus PowerPC

GE Fanuc Embedded Systems complements its VME processor solutions with PowerPC®-based 6U single board computers developed to meet the needs of demanding embedded applications.

	Size (in Us)	Processor Type & Speed	Maximum Memory	# PMC Slots	Bus Interface Chip
PowerXtreme PPC9A	6U	Freescale™ 864	Up to 4 GB DDR2 SDRAM w/ECC	2 XMC/PMC	Tundra Tsi148
PowerXtreme PPC7D	6U	1.4 GHz Freescale™ 7448	Up to 1 GB DDR SDRAM w/ECC	2	Tundra Universe II
PowerXtreme PPC7A	6U	1.1 GHz Freescale™ 7410 or 7457	Up to 512 MB SDRAM	-	Tundra Universe II
PowerXtreme PPC4A	6U	500 MHz Freescale™ 755/7410	Up to 512 MB SDRAM w/ECC	2	
V2S	6U	Freescale™ 7447A G4 PowerPC® up to 1 GHz	Up to 1 GB SDRAM w/ECC	1	Tundra Tsi148
XtraPower PPCM2	6U	1.4 GHz 2x Freescale™ 7448	Up to 2x 1 GB DDR SDRAM w/ECC	2	Tundra Tsi148
XtraPower PPCM1	6U	1 GHz 2x Freescale™ 7457	Up to 2x 512 MB SDRAM w/ECC	2	Tundra Universe II
EmPower EP2A	6U	1.0 GHz Freescale™ 7448	Up to 1 GB DDR SDRAM	2	Tundra Tsi148
EmPower EP1A	6U	350 MHz Freescale™ 8240 or 8245	64 MB SDRAM w/EDC	2	Tundra Universe II
PowerXpress PPC8A	6U	1.2 GHz Freescale™ 7447	Up to 1 GB SDRAM w/ECC	2	Tundra Universe II
VG5	6U	867-1267 MHz Single/Dual Freescale™ MPC7457	Up to 512 MB SDRAM w/ECC	1, 2	Tundra Universe IID
VME-7050	6U	733 MHz IBM 750FX PowerPC® and 1.0 GHz IBM 750GX PowerPC®	Up to 2 GB DDR226 SDRAM w/ECC	2	Tundra Universe IID

## VPX PowerPC

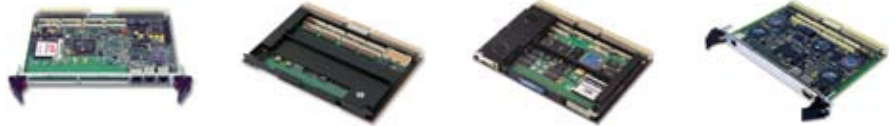
VPX (previously known as VITA 46) brings switched fabrics to VMEbus-based systems. VPX was specifically created with the defense community in mind, and it retains the existing 6U and 3U form factors, supports existing PMC and XMC mezzanines, and maintains the maximum possible compatibility with VMEbus.

	Size (in Us)	Processor Type & Speed	Maximum Memory	# PMC Slots	Ethernet	Serial I/O	Rugged Options	Notes
VPXtreme3 SBC330	3U	1.5 GHz Freescale™ 8641D	Up to 4 GB DDR2 SDRAM	0	2x Gigabit Ethernet	2	5 ruggedization levels, air and conduction-cooled	One 8x and One 4x PCIe ports; SATA
VPXtreme6 SBC610	6U	1.5 GHz Freescale™ 8641D	Up to 2 GB DDR2 SDRAM	2 XMC/PMC	2x Gigabit Ethernet	6	5 ruggedization levels, air and conduction-cooled	Additional Flexible Interface Xtension (AFIX) Site; 2x SATA; 2x USB 2.0

## Industrial PC

GE Fanuc Embedded Systems DINrail-mounted, industrial PCs offer a compact design and meet the needs of rugged applications with flexible I/O configuration options, shock/vibration immunity, and fanless operation. Stand-alone board versions without a metal housing are also available.

	Dimensions (mm) (H x W x D)	Processor Type & Speed	Maximum Memory	PC/104+ Slots	Bus Interface Chip
PC7	145 x 229/242 x 92	700 MHz Intel® Pentium® III Processor	Up to 256 MB SDRAM (100)	3	Intel® 82810 Graphics Controller
Talon 8400	90 x 231.14 x 144	733 MHz Intel® Celeron® M Processor	256 MB SODIMM PC-133 DRAM	3	Hint HB6



Ethernet	Serial I/O	Rugged Options	Transition Modules	Notes
2x Gigabit Ethernet	6	1-3 rugged air-cooled; 4-5 rugged conduction-cooled		AFIX (Additional Flexible Interface Xtension) site; 2x SATA
2x Gigabit Ethernet	6	5 ruggedization levels, air and conduction-cooled	P25X606A	Additional Flexible Interface Xtension (AFIX) Site; 2x USB 2.0
2x 10/100 Mb/s	6	5 ruggedization levels, air and conduction-cooled	P25X606A	Graphics accelerator; Digital I/O (or parallel port); SCSI interface
10/100 Mb/s	4	5 ruggedization levels, air and conduction-cooled	P26X602	1 MB L2 Cache;
2x Gigabit Ethernet on the rear	2	Cond. Cooled, Conv. Cooled	VXS1-TM	2eSST VMEbus
2x Gigabit Ethernet	4	5 ruggedization levels, air and conduction-cooled	P0P2X600	2x USB 2.0; 2eSST VME; 2x StarFabric ports
10/100 Mb/s	2	5 ruggedization levels, air and conduction-cooled	P25X603	PPzero on board
2x Gigabit Ethernet on the rear	6	Cond. Cooled, Conv. Cooled, Rugged	P0P2X602	AFIX site; 2eSST VMEbus
10/100 Mb/s	4	5 ruggedization levels, air and conduction-cooled	P25X601	Optional MIL-STD-1553 interface; CompactFlash site
1 Gigabit Ethernet on front panel RJ45; 2x 10/100 Mb/s to P2	6	Level 1 and 2 convection-cooled	P25X606A	Pin compatible to PPC6 and PPC1A
2 10/100 Mb/s, Up to 2x Gigabit Ethernet	Single - 4, Dual - 6	Cond. Cooled, Ext. Temp, Rugged	VTM20	Asymmetrical Multi-Processing Architecture
2x gigabit Ethernet on front panel RJ45 or rear I/O P2 connector	2	none	VMIACC-7050	

## ProcessorPMC

Processor PMCs (PrPMC) maximize design flexibility with a modular approach to adding processing power to a host board. The PMC Card functions as a complete processor subsystem and can be used to control a carrier card, effectively making it into a Single Board Computer or blade. The processor module can be added to any system with an open PMC slot.

	Processor Type & Speed	Maximum Memory	Bus Interface Chip	Ethernet	Serial I/O
<b>EmPower PrPMCQ2</b>	450 MHz Freescale™ 8280 PowerQUICC II	32 MB SDRAM	Powerspan II	10/100BaseT	4
<b>PMC721TX</b>	533 MHz IBM PowerPC® 440GX	512 MB SDRAM w/ECC		2x Gigabit Ethernet on the front	1
<b>PSL09</b>	Intel® Pentium® M Processor up to 1.4 GHz, Ultra Low Voltage Intel® Celeron® processor	Up to 256 MB SDRAM w/ECC	PLX PCI6466	2 10/100 Mb/s	1



Ethernet	Serial I/O	Rugged Options	Housing	Notes
10/100 Mb/s	4	Ext. Temp	Metal housing for DINrail mounting	CANbus; Parallel port; Opto-isolated I/O
2x 10/100 Mb/s	4	Hazardous Locations and Ext. Temp	Aluminum Housing	Fanless Operation



# sensor & signal processing

AXIS Multiprocessing, DSP Tools & Libraries . . . . .	28
Multiprocessors . . . . .	29
Sensor Processing: Acoustic . . . . .	30
Sensor Processing: Radio. . . . .	31



# AXIS Multiprocessing, DSP Tools & Libraries

AXIS - Advanced Multiprocessor Integrated Software - accelerates development of complex signal processing applications on multiprocessor PowerPC® systems. It delivers immediate and long term value, supporting both current and future products with seamless integration between the single board computer, signal processing and sensor I/O.

## Notes

AXISFlow

High performance inter-processor communication library

AXISLib-RSPL

Performance Optimized Signal Processing Library

AXISLib-VSIPL

Performance Optimized Vector Signal Image Processing Library

AXISPro

Combined package for multiprocessor software development

AXISView

Multiprocessor productivity tools, integrating system development and debug environments

## AXIS DSP Tools & Libraries

AXIS (Advanced Multiprocessor Integrated Software) is a performance-optimized software environment designed to accelerate the development and deployment of complex signal processing applications based on selected PowerPC® systems. Its integrated modular architecture providing significant flexibility.

AXIS allows for selection of the functionality required for a specific task and the ability to reconfigure or scale the system to meet future application demands. AXIS provides a foundation to build upon with immediate and long term value. It supports seamless integration between the single board computer, signal processing and sensor I/O.

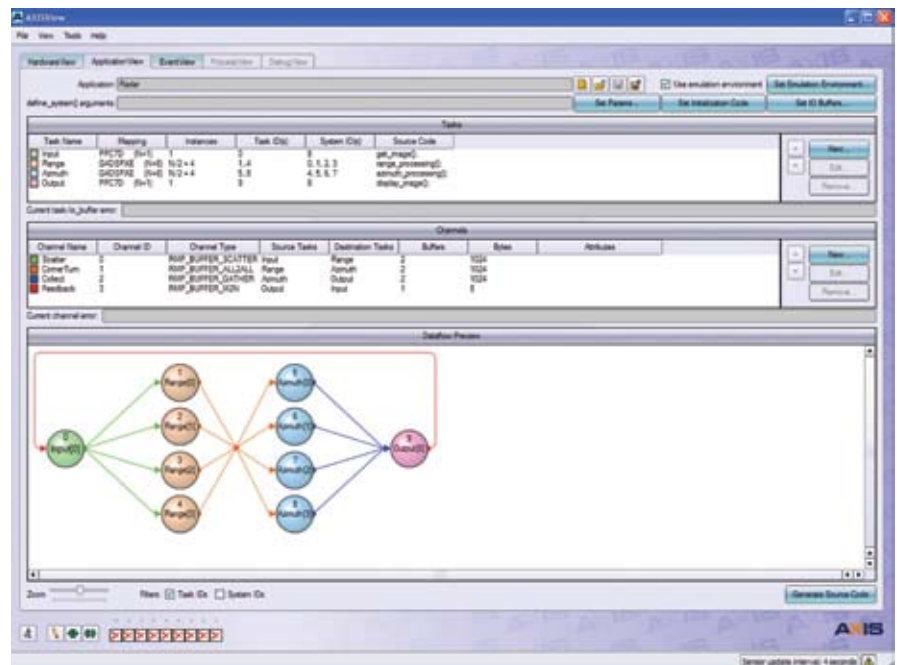
**AXISFlow** Interprocessor Communications software provides high throughput, low latency, reconfigurable interconnects that facilitate data transport between tasks, processors, boards and systems. Processing elements can be integrated for seamless scalability to meet the requirements of the most demanding applications.

**AXISView** is a suite of integrated graphical tools designed for complex multiprocessor systems. It provides system visualization with the ability to configure, download, run, debug and monitor a multiprocessor application from an integrated, intuitive GUI environment. It also provides a level of code generation to

automatically create configuration code and application templates.

**AXISPro** combines the two key elements of AXIS Advanced Multiprocessor Integrated Software as a single package. It bundles AXIS-Flow Interprocessor Communications libraries, together with AXISView integrated graphics tools designed to enable system visualization.

Together, these elements provide a powerful and cost-effective solution to enable faster, easier development and deployment of the sophisticated multiprocessor systems that will be at the heart of the defense applications of the future.



# Multiprocessors

Our multiprocessor SBCs feature distributed and shared memory processing architectures using the latest Freescale™ processors. They support scaling of multiple processing nodes, both on-board and multi-board node scaling. The boards strike a balance between processors sharing global memory and I/O resources, and individual processors with dedicated memory.

	Form Factor	Processors	Memory	Fabric Interface	Mezzanine	Ethernet	Serial Ports	Operating System (OS) Support	Ruggedization
DSP230	6U VPX	4x MPC8641D	2 or 4 GB DDR2	sRIO, PCIe	1 x XMC Site	2x GbE to onboard switch	8x RS232 (or 4x RS232 + 4x RS422)	LynxOS®, VxWorks®	Air cooled rugged, Commercial, conduction cooled rugged, Ext. Temp.
G4DSP-XD3	6U VME64	4x MPC7448	1 or 2 GB DDR	StarFabric	2 PMC sites	4x GbE (1 to each CPU)	4 x RS232 front	Integrity®, LynxOS®, VxWorks®	Air cooled rugged, Commercial, conduction cooled rugged, Ext. Temp.
NEXUS Forte	6U MVE320	1x, 2x, or 4x MPC7448 (up to 1.4 GHz)	1 GB DDR	VITA 31.1 (2xGbE- p0)	2 x PMC (64x133)	2 x GbE switched to P0 + 1x GbE switched to FP (Optional for CC)	2 x RS232/422/485 with RTS/CTS rear (all configurations), 4 x RS232 front (benign configuration), 4 x RS232/422/485 rear	Linux®, VxWorks®	Air cooled rugged, Commercial, conduction cooled rugged, Ext. Temp.
NEXUS Quattro	6U MVE320	4x MPC744 (up to 1.4 GHz)	1 GB DDR	VITA 31.1 (2xGbE- p0)	2 x PMC (64x133)	2 x GbE switched to P0 + 1x GbE switched to FP (Optional for CC)	4 x RS232 front (benign configuration), 4 x RS232/422/485 rear to P0 (all configurations)	Linux®, VxWorks®	Air Cooled Commercial Temperature Range only
V4DSP	6U VME320	2x Virtex FX100 & 1x MPC7448	256MB PC266 DDR on 7448 node & 1 bank 2Mx36bits QDR2 SRAM & 2 banks 64Mx-16bits DDR2 SDRAM per FX100 node	Rocket I/O & StarFabric	1x PMC/ XMC	1x GbE to onboard switch, 6 ports supported	6x RS232	LynxOS®, VxWorks®	Air cooled rugged, Commercial, Cond. Cooled rugged, Ext. Temp.
VQG4 PowerPC VME	6U VME64X	1x, 2x, or 4x MPC7410 (500 MHz)	256MB or 512MB SDRAM	N/A	2x PMC (1x 64x66, 1x 32x33)	1 x 10/100 Front	4 x RS232 front, 4 x RS232/422/485 rear	Linux®, VxWorks®	Commercial

sensor & signal processing



## DSP230

The DSP230 is the world's first 0.8 inch pitch quad PowerPC® 8641D solution, providing unrivalled system densities as a standalone card or as part of an integrated AXIS MultiComputer. This 6U VPX system blade can scale from 4 to 80 AltiVec nodes per enclosure. High speed data movement between I/O and processor nodes is easy to implement using our AXISFlow software framework. AXISFlow leverages the blade's message passing accelerator architecture with both Serial RapidIO and PCI Express™ between all nodes and system I/O, as well as Gigabit Ethernet connectivity to the network.

## Sensor Processing: Acoustic

Engineers are looking for solutions that provide low-cost, rapid deployment, ease of upgrade and high reliability. Our VME, cPCI and PCI COTS products are designed to offer the highest level of performance and also meet the above requirements. GE Fanuc Embedded Systems offers both board and system-level solutions for sonar receive, transmit and simulation/stimulation applications.

	Memory	Function	Max. Sampling/ Conversion Frequency	Channels	Resolution	Form Factor
daqNet	256 MBytes	Analog Input, Analog Output & Digital I/O options	625 kHz/ch.	192 Analog & 240 Digital	24-bit	1U Rackmount
daqPC	4 Terabyte Storage	Embedded, PCI-based Data Acquisition, Processing & Recording System		unlimited	various	Rackmount or portable
ICS-110BL	128 KBytes	Analog Input	108 kHz/ch.	32	24-bit	6U VME
ICS-115A	1 MByte	Analog Output	100 kHz/ch.	32	16-bit	6U VME
ICS-121		Signal Conditioner	300 kHz/ch.	32		6U VME
ICS-130	4 MBytes	Analog Input	1.2 MHz/ch.	32	16-bit	6U VME
ICS-141		Signal Conditioner	1 MHz/ch.	32		6U VME
ICS-1745	16 MBytes	Analog Input	5 MHz/ch.	8	16-bit	3U cPCI
ICS-500 R/T	8 MBytes	FPDP/FPDP II Buffer				PMC (Single Width)
ICS-610	4 MBytes	Analog Input	108 kHz/ch.	32	24-bit	PCI (Full Length)
ICS-625B	4 - 16 MBytes	Analog Output	288 kHz/ch.	32	24-bit	PCI (Full Length)
ICS-645B	16 MBytes	Analog Input	20 MHz/ch.	32	16-bit	PCI (Full Length)
ICS-645D	16 MBytes	Analog Input	2.5 MHz/ch.	32	16-bit	PCI (Full Length)
ICS-710	4 - 16 MBytes	Analog Input	216 kHz/ch.	32	24-bit	6U cPCI
ICS-725	4 - 16 MBytes	Analog Output	288 kHz/ch.	32	24-bit	6U cPCI
ICS-8145	2 - 8 MBytes	Rugged ADC VME Module	2.5 MHz/ch.	16	16-bit	6U VME
ICS-8500	8 MBytes	Rugged FPDP/FPDP II Receiver & Transmitter				PMC (Single Width)

### daqNET Acoustic Data Conversion System

The daqNet is an autonomous high speed acoustic data conversion system ideal for network-centric environments. It provides data connections and control through dual Gigabit Ethernet interfaces in a 1U form factor. The daqNet can be connected to the network, configured with the included sample application, and tested through hardware-implemented ADC/DAC test channels.

The daqNet is intended for sonar, vibration analysis, and test and measurement applications. It provides high performance, high-speed signal conversion for up to 192 channels of analog I/O or 240 channels of digital I/O. It is customizable using any combination of up to four analog or digital I/O modules. Each digital I/O module provides immediate external signal and timebased trigger capabilities.

An unlimited number of daqNet servers and channels can be synchronized using our time stamping technology. Each daqNet supports master/slave configuration for redundancy in the event of a failure. The system can be optionally provided with an external A/D sampling clock, sync and trigger for enabling A/Ds and digital I/Os.



## Sensor Processing: Radio

Our FPGA-based Software Defined Radio (SDR) boards are available in PCI, XMC/PMC and VME formats and can be used for radar, communications, electronic warfare, SIGINT, cellular base stations, RF test equipment, etc. For multi-mission and cognitive radio applications, our SDR blades deliver processing power, plus receive and/or transmit functions in one VME or PCI bus slot.

	Memory	Function	Max. Sampling / Conversion Frequency	Channels	Resolution	Form Factor	User Programmable FPGA	Rugged Options
ICS-150B		Receiver & Transceiver (Analog Input and Output)	20 MHz/ch.	4 in, 4 out	12-bit	VME (6U)		Commercial
ICS-1580	64 MBytes SDRAM, 16 MBytes QDRII SRAM	FPGA Basband Processor				PMC (Single Width)	Virtex-II Pro XC2VP70 or XC2VP100	Commercial
ICS-554	1 MByte FIFO	Receiver (Analog Input)	105 MHz/ch.	4	14-bit	PMC (Single Width)	XC2V1000, XC2V3000	Commercial
ICS-564	2 MBytes FIFO	Transmitter (Analog Output)	200 MHz/ch.	4	14-bit	PMC (Single Width)	Xilinx XC2V1000	Commercial
ICS-572	64 MBytes SDRAM, 8 MBytes QDRII SRAM	Transceiver (Analog Input & Output)	105 MHz/ch. (Rx), 200 MHz/ch (Tx)	2 in, 2 out	14-bit	PMC (Single Width)	XC2V4000, XC2V6000	Commercial
ICS-660B	1 MByte	Transceiver (Analog Output)	105 MHz/ch.	4	14-bit	PCI (Short Length)		Commercial
ICS-8550		Analog Input	210 MHz/ch.	2	12-bit	PMC (Single Width)	Virtex-4 XC4VFX60 or /FX100	Level 1 - 5
ICS-8552B	2 MBytes FIFO	Rugged Digital Receiver	105 MHz/ch.	2	14-bit	PMC (Single Width)	Virtex-II XC2V3000	Level 1 - 5
ICS-8554D	2 MBytes FIFO	DC-Coupled ADC PMC Module	105 MHz/ch.	4	14-bit	PMC (Single Width)	Virtex-II XC2V3000	Level 1 - 5
IMP1A-571 Blade	128 MBytes SDRAM	Rugged 3U CompactPCI Blade	80 MHz/ch.	1 in, 1 out	14-bit	CompactPCI (3U)	Virtex-II	Level 1 - 5
Memory Blade	2 GBytes SDRAM	PCI Software Radio Memory Blade	200 MHz/ch.	4 (max.)	14-bit	PCI (Full Length)	Virtex-II	Commercial
PMCS71		Transceiver (Analog Input & Output)	100 MHz/ch.	1 in, 1 out	14-bit	PMC (Single Width)	Xilinx Virtex-II XC2V4000	Level 1 - 5
PowerPC DSP Blade	128 MBytes or 256 MBytes SDRAM	VME Software Radio PowerPC DSP Blade	200 MHz/ch.	4 (max.)	14-bit	VME (6U)	Virtex-II	Commercial
PPC8A-572 Blade	64 MBytes SDRAM, 8 MBytes QDRII SRAM	6U VME Processor Blade	105 MHz/ch.	2 in, 2 out	14-bit	VME (6U)	XC2V4000, XC2V6000	Level 1 - 5
TI C64 DSP Blade	32 MBytes SDRAM per DSP	PCI Software Radio TI C64 DSP Blade	200 MHz/ch.	4 (max.)	14-bit	PCI (Full Length)	Virtex-II	Commercial
Xilinx FPGA Blade	64 MBytes SDRAM, 20 MBytes QDRII SRAM	PCI Software Radio Xilinx FPGA Blade	200 MHz/ch.	4 (max.)	14-bit	PCI (Full Length)	Virtex-II	Commercial

## Software Defined Radio

Software Defined Radio (SDR) promises to revolutionize communications and telemetry by delivering a new flexibility and ease of design that are impossible in traditional radio implementations. SDR replaces fixed application-specific hardware with flexible and reconfigurable hardware that may be programmable to provide the desired functionality.

GE Fanuc Embedded Systems remains at the forefront of this technology with a family of open architecture modules that include

large capacity FPGA devices for customer-specific signal processing functions available in PCI, XMC/PMC and VME formats.

We have hard-to-find expertise in processing ADC and DAC data in real-time, plus experience with complex communication systems and real-time software development. Our SDR products are ideal for military communications, tactical radio, signal intelligence, smart antenna, 3G & 4G cellular base station

development, radar beamforming, wireless test & measurement, satellite ground stations plus transceivers and public safety.





# avionics

AFDX/ARINC 664 . . . . .	34
Other Protocols . . . . .	34
ARINC 615 Data Loader . . . . .	34
ARINC 429 . . . . .	35
Avionics IP Core . . . . .	36
Other Aerospace Products . . . . .	36
Data Bus Analyzers . . . . .	37
MIL-STD-1553 . . . . .	38
10MBit 1553 . . . . .	39

## AFDX/ARINC 664

AFDX is a deterministic protocol for real time application on Ethernet media, also known as ARINC 664 Part 7. It is intended for aircraft flight critical interfaces, including Engines, Flight Controls, Navigation Systems. With both hardware-based and software loadable AFDX, we support AFDX across evolving platforms to protect your avionics investment.

	Form Factor	# Channels	Processor Type & Speed	AFDX Stack	Rugged Options	Options/ Notes
<b>AFDX-E1000 Series</b>	VME 6U	1 or 2	Freescale™ MPC7457 @ 1000 MHz	AFDX / ARINC 664 protocol stack	Cond. Cooled, Conv. Cooled, Rugged	AFDX End System. Ready for flight applications. Protocol and AFDX stack update in SW. Optional Built-In Test.
<b>CNIC-A2P</b>	PMC	2	FPGA	AFDX / ARINC 664 protocol stack	Conv.Cooling, Ext. Temp	IRIG Support. BusTools/AFDX analyzer available.
<b>CNIC-A2P3</b>	cPCI 3U	2	FPGA	AFDX / ARINC 664 protocol stack	Conv.Cooling, Ext. Temp	IRIG Support. BusTools/AFDX analyzer available.
<b>CNIC-A2PF</b>	cPCI 6U	2	FPGA	AFDX / ARINC 664 protocol stack	Conv.Cooling, Ext. Temp	IRIG Support. BusTools/AFDX analyzer available.
<b>CNIC-A2PX</b>	PCI	2	FPGA	AFDX / ARINC 664 protocol stack	Conv.Cooling, Ext. Temp	IRIG Support. BusTools/AFDX analyzer available.



### ARINC 615 Data Loader

This streamlined, single- or multi-session software provides intuitive Microsoft® Windows®-based ARINC 615-3/603 data loading. The single-session software loads one ARINC 615-3/603 compatible LRU at a time. The multi-session integrated hardware/software solution supports up to 16 simultaneous upload or download sessions with ARINC 615/603 compatible LRUs. Data sets can be retrieved from any location accessible by the host machine (including local and network drives), which eliminates the need for disk-swapping.

When combined with our interface hardware, the easy-to-use single-session CEI-DL software delivers a powerful portable solution potentially capable of streaming upload data via a wireless LAN connection (user-specific). The multi-session interface of the CEI-DL software is integrated with multiple hardware platforms to provide Windows-based ARINC 615-3/603 data loading of operational programs and database software. Supported on PCI, CompactPCI®, PMC, PC/104, PC/AT and PCMCIA platforms, this flexible application software provides both an easy-to-use portable solution and a robust, multiple-unit, factory or lab station. GE Fanuc's CEI-DL data loader solution can be used for development, test, flightline, and maintenance applications.

## Other Protocols

Interface to a wide range of avionics protocols. Many of our ARINC 429 boards offer options for additional commercial avionics protocols. We offer modular board solutions for PCI, CompactPCI, VME and VXI platforms. Optionally supported protocols include: ARINC 561/568 6-wire, ARINC 573/717, ARINC 419, ARINC 582, ARINC 708/453, RS-232/422/485, ARINC 615-3 and CSDB.

	Form Factor	Application	# Channels	Temp Range
<b>IP-422485-8</b>	IP	Lab, Simulation	8	Com
<b>IP-232-8</b>	IP	Lab, Simulation	8	Com
<b>IP-561A</b>	IP	Lab, Simulation	1	Com
<b>IP-708</b>	IP	Lab, Simulation	1	Com
<b>IP-717</b>	IP	Lab, Simulation	1	Com
<b>P-708</b>	PCI	Lab, Simulation	1 to 2	Com XT

# ARINC 429

Our ARINC solutions are feature rich and easy to use. Most offer individual channel programmability for source or sink, and optional IRIG B receive time stamp. The PCI and PMC interfaces offer on-board transmit channel listen feature. They provide a user-friendly design with on-board management of transmission, receive, and data logging execution.

	Form Factor	Application	# Channels	Analyzer	Temp Range	IRIG Time Code Option	Protocol
A429-cPCI3U	cPCI 3U	Lab	8		Com		ARINC 429, 575
A429-PC	ISA	Lab, Simulation & Test	8 or 16	PASS	Com		ARINC 429, 575
A429-PCI	PCI	Lab	8	PASS	Com	☉	ARINC 429, 575
A429-PCI2	PCI	Lab	16	PASS	Com	☉	ARINC 429, 575
A429-PCMCIA2	PCMCIA	Notebook Portable	8	PASS	Com		ARINC 429, 575
A429-PMC	PMC	Lab, Rugged	16		Com XT CC	☉	ARINC 429, 575
A429-V2	VME	Lab	16		Com	☉	ARINC 429, 575
CEI-220	ISA	Lab, Simulation	2 to 12	BusTools	Com		ARINC 429, 561, 568 6-wire, 575
CEI-420A	PC/104	Lab, Rugged, Simulation	2 to 8	BusTools	Com XT		ARINC 429, 573, 575, 717
CEI-430	PC/104, PC/104-Plus	Lab, Simulation	2 to 12		Com XT	☉	ARINC 429, 573, 717
CEI-500	PCI	Lab, Simulation	2 to 40		Com		Modular ARINC 419, 429, 453, 561, 568 6-wire, 573, 575, 582, 708, 717, CSDB, MIL-STD-1553, RS-232, RS-422, RS-485
CEI-520/520A	PCI	Lab, Simulation	2 to 16	BusTools	Com		ARINC 419, 429, 573, 575, 582, 717, CSDB
CEI-600	cPCI	Lab, Simulation	2 to 32		Com		Modular ARINC 419, 429, 453, 561, 568 6-wire, 573, 575, 582, 708, 717, CSDB, MIL-STD-1553, RS-232, RS-422, RS-485
CEI-620	cPCI	Lab, Rugged, Simulation	2 to 16	BusTools	Com XT		ARINC 429, 573, 575, 582, 717
CEI-715	PCMCIA	Lab, Rugged, Simulation	2 to 8	BusTools	Com		ARINC 429, 561, 568 6-wire, 573, 575, 582, 717, CSDB
CEI-820	PMC	Lab, Simulation	2 to 8		Com XT		ARINC 429, 573, 575, 582, 717
CEI-820TX	PMC	Lab, Rugged, Simulation	32		Com XT		ARINC 429, 575
CEI-830	PMC	Lab, Rugged, Simulation	2 to 16	BusTools	Com XT	☉	ARINC 429, 573, 575, 582, 717
IP-429HD	IP	Lab, Rugged, Simulation	2 to 8		Com		ARINC 429, 575, 582
MAC - VME	VME	Lab, Simulation	2 to 32	BusTools	Com	☉	Modular ARINC 419, 429, 453, 573, 575, 708, 717, RS-232, RS-422, RS-485
MAC - VXI	VXI	Lab, Simulation	2 to 32		Com	☉	Modular ARINC 419, 429, 453, 573, 575, 708, 717, RS-232, RS-422, RS-485
PA-100	Portable	Lab, Simulation	1 to 2	BusTools	Com		ARINC 429, 575

## Avionics IP Core

Revolutionary advances in a new generation of programmable logic devices (PLDs) allow us to provide new and exciting protocol communications options. The military electronics industry is rapidly moving to deploy these higher levels of integration provided by System on a Chip (SoC) or integrated I/O implementations.

	Form Factor	Application	Operating Mode
CORE-1553 (CFM-1553)	Custom	Rugged	Single/Full Function
CORE-1553 (CMS-1553)	Custom	Rugged	Single/Full Function
CORE-1553 (CRT-1553)	Custom	Rugged	Single/Full Function
CORE-1553 (K-1553-FM)	Custom	Rugged	Single/Full Function
CORE-1553 (K-1553-R)	Custom	Rugged	Single/Full Function
FlightCORE-1553 (FC-GSK)	Custom	Rugged	Single/Full Function
FlightCORE-1553 (FC-SMF)	Custom	Rugged	Single/Full Function

## Other Aerospace Products

GE Fanuc Embedded Systems produces interfaces for specialized data bus systems such as those used on the F-16 and Space Shuttle. Please consult us by phone for your specialized bus application, including Bus Expansion and Stub Extension.

	Backplane	Temperature	Features & Benefits
ABI-cPCI3U2-WMUX-2	cPCI 3U	Commercial, Conduction Cooled	The F-16 WMUX interface provides a flexible, full function WMUX interface to a wide variety of backplanes. The architecture provides concurrent and independent operation of a Central Interface Unit (CIU), 15 Remote Interface Units (RIU), and dual function Bus Monitoring (BM). SBS WMUX products equip the host system with a complete WMUX interface including programmable frame lists, RIU response tables, map monitoring, 100% independent sequential bus monitoring and extensive programmable event interrupts.
ABI-PC3-WMUX-1	ISA	Commercial, Conduction Cooled	The F-16 WMUX interface provides a flexible, full function WMUX interface to a wide variety of backplanes. The architecture provides concurrent and independent operation of a Central Interface Unit (CIU), 15 Remote Interface Units (RIU), and dual function Bus Monitoring (BM). SBS WMUX products equip the host system with a complete WMUX interface including programmable frame lists, RIU response tables, map monitoring, 100% independent sequential bus monitoring and extensive programmable event interrupts.
ABI-PCI-WMUX-1	PCI	Commercial, Conduction Cooled	The F-16 WMUX interface provides a flexible, full function WMUX interface to a wide variety of backplanes. The architecture provides concurrent and independent operation of a Central Interface Unit (CIU), 15 Remote Interface Units (RIU), and dual function Bus Monitoring (BM). SBS WMUX products equip the host system with a complete WMUX interface including programmable frame lists, RIU response tables, map monitoring, 100% independent sequential bus monitoring and extensive programmable event interrupts.
ABI-PMC2-WMUX	PMC	Commercial, Conduction Cooled	The F-16 WMUX interface provides a flexible, full function WMUX interface to a wide variety of backplanes. The architecture provides concurrent and independent operation of a Central Interface Unit (CIU), 15 Remote Interface Units (RIU), and dual function Bus Monitoring (BM). SBS WMUX products equip the host system with a complete WMUX interface including programmable frame lists, RIU response tables, map monitoring, 100% independent sequential bus monitoring and extensive programmable event interrupts.
ABI-V6-WMUX	VME	Commercial, Conduction Cooled	The F-16 WMUX interface provides a flexible, full function WMUX interface to a wide variety of backplanes. The architecture provides concurrent and independent operation of a Central Interface Unit (CIU), 15 Remote Interface Units (RIU), and dual function Bus Monitoring (BM). SBS WMUX products equip the host system with a complete WMUX interface including programmable frame lists, RIU response tables, map monitoring, 100% independent sequential bus monitoring and extensive programmable event interrupts.

# Data Bus Analyzers

Our powerful application software gives you simplified control over receive, transmit, logging and analysis functions. You can analyze bus traffic, quickly generate or modify messages and view received data in engineering units. Our tools provide a full suite of advanced features for use in the laboratory, in flight or on the flight line.

	Notes
BusTools/1553	Software support only available for Santa Barbara based cards. Contact factory for listing of supported products.
BusTools/AFDX	Software support only available for Santa Barbara based cards. Contact factory for listing of supported products.
BusTools/ARINC	Software support only available for Santa Barbara based cards. Contact factory for listing of supported products.
PASS 3200	Software support only available for Albuquerque based cards. Contact factory for listing of supported products.

## Selecting a Bus Analyzer

The wide range of protocols in use today in various bus systems for military, avionics and other commercial applications has accelerated the evolution of bus analyzers. As a result, choosing the right analyzer is no longer a simple task. The following are some important new features you may want to evaluate before selecting an analyzer:

### P.C. vs. Box-based Analyzers

PC-based analyzers with a graphical user interface (GUI), such as our BusTools and PASS3200, provide distinct advantages over box-based analyzers. They include the ability to perform protocol checking and set up terminals using the GUI software. PC-based analyzers also make it easy to set up data streams and data buffers for export to other applications and to perform engineering-unit conversion. This would be very difficult to set up in a box-based analyzer.

### Clear, User-Friendly Interface

Users today expect a clear, tree-based interface or a tree based representation of the bus. A graphical presentation breaks out the bus components and their sub-features, and provides the user with a clear picture of the bus. Furthermore, a bus analyzer should provide a detailed presentation of bus activity while the analyzer is running.

### Three Distinct Functions

A full-featured bus analyzer can be divided into logic analyzer functions, protocol analyzer capabilities and system-level troubleshooting.

Logic analysis enables the user to set up separate files, based upon certain activity patterns or events that occur on the bus. A logic analyzer can also discard words or messages unrelated to bus analysis. System-level troubleshooting offers the ability to set upper and lower boundaries so an alarm is sent when the value breaks these boundaries.

### Archiving Traffic

Archiving traffic off the bus allows playback of a particular activity. Playing an archived data file back to the interface bus allows the user to take data gathered in the field back to a laboratory environment where the problem can be recreated for further analysis and troubleshooting. Both the BusTools and PASS3200 analyzers provide this feature.

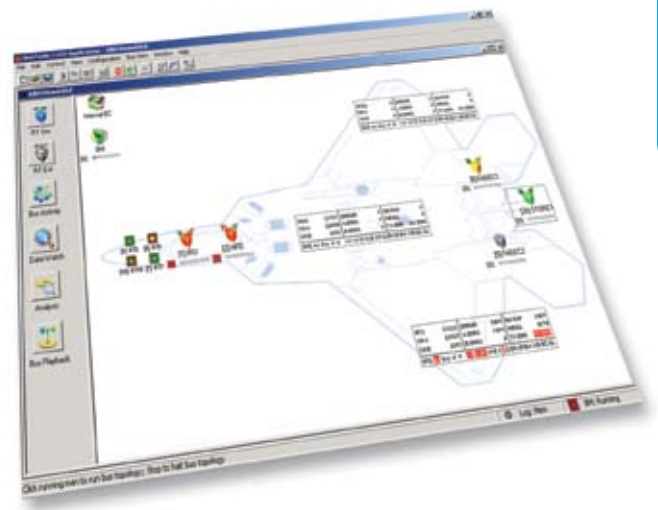
### Different Vantage Points

PC-based bus analyzer tools provide many different ways to look at protocol and system level analysis. For instance, a 'data watch' feature allows the user to actually graph the data as it occurs. Multiple comparative windows enable analysis of bus activity at different points within the bus traffic, allowing comparison of messages and/or the data. With BusTools, the user can request a sequential view

which displays the data that occurs contiguously within an inverted stack. It displays the first message recorded, followed by a sequence of other messages, which followed the first message. This is sometimes called a 'sequential view' or a 'stacked view'.

### Simulation Ability

Another important requirement to consider in choosing a bus analyzer is the ability to simulate the terminals related to data bus traffic. For instance, in MIL-STD-1553 the analyzer would simulate the bus controller or a remote terminal. This means loading up the bus analyzer with data and errors that can then be used to stimulate other components on the bus to learn just how they will react.



# MIL-STD-1553

We offer a wide range of intelligent MIL-STD-1553 interface hardware. Our product line combines high-speed encoding/ decoding, large onboard memory, intelligent protocol processing and advanced board-level functionality. This enables accurate buffering and recording of bus traffic with no data loss while simultaneously scheduling 1553 messages without host intervention.

	Form Factor	Application	Operating Mode	Analyzer	Temp Range	# Channels	Variable Voltage	IRIG Time Code Option
1553-3CP3	cPCI 3U	Rugged	Single/Full Function	PASS	CC	2 or 3		☐
1553-PCI3	PCI	Lab	Single/Full Function	PASS	Com	1 to 4	☐	☐
1553-PMC3	PMC	Rugged	Single/Full Function	PASS	CC	1 to 4		☐
ABI-cPCI3U2	cPCI 3U	Lab	ABI		Com XT	1 to 4	☐	☐
ABI-cPCI6U	cPCI 6U	Lab	ABI		Com XT	1 or 2	☐	☐
ABI-PC104-2	PC-104	Lab, Rugged	ABI	PASS	Com XT	2		☐
ABI-PC3	ISA	Lab	ABI	PASS	Com XT	1 or 2	☐	☐
ABI-PCI	PCI	Lab	ABI	PASS	Com	1 or 2	☐	☐
ABI-PCMCIA2 (PCM2)	PCMCIA	Lab, Notebook Portable	ABI	PASS	Com	1		
ABI-PMC2	PMC	Lab, Rugged	ABI		Com XT CC	1 or 2	☐	☐
ABI-V5	VME	Simulation & Test	ABI		Com	1 or 2	☐	☐
ABI-V6-1/2	VME	Lab	ABI		Com XT	1 or 2	☐	☐
ABI-V6-3/4	VME	Lab	ABI		Com XT	3 or 4	☐	☐
ABI-V6CC	VME	Rugged	ABI		CC	1 or 2		☐
ASF-cPCI3U2	cPCI 3U	Lab	ASF		Com XT	1 to 4	☐	☐
ASF-cPCI6U	cPCI 6U	Lab	ASF		Com XT	1 or 2	☐	☐
ASF-PC104-2	PC-104	Lab, Rugged	ASF		Com XT	2		☐
ASF-PC3	ISA	Lab	ASF		Com XT	1 or 2	☐	☐
ASF-PCI	PCI	Lab	ASF		Com	1 or 2	☐	☐
ASF-PCMCIA2 (PCM2)	PCMCIA	Lab, Notebook Portable	ASF		Com	1		
ASF-PMC2	PMC	Lab, Rugged	ASF		Com XT CC	1 or 2	☐	☐
ASF-V6-1/2	VME	Lab	ASF		Com XT	1 or 2	☐	☐
ASF-V6-3/4	VME	Lab	ASF		Com XT	3 or 4	☐	☐
ASF-V6CC	VME	Rugged	ASF		CC	1 or 2		☐
EPMC-1553	PMC	CC, Lab, Rugged	Single/Full Function		Com XT	1 to 8		☐
IP-D1553	IndustryPack	Lab	Single/Full Function	BusTools	Com XT	1 to 2		☐

	Form Factor	Application	Operating Mode	Analyzer	Temp Range	# Channels	Variable Voltage	IRIG Time Code Option
ISA-1553	ISA	Lab	Single/Full Function	BusTools	Com	1 to 2	●	
LV-1553		Development						
PCC-D1553	PCMCIA	Lab	Single/Full Function	BusTools	Com XT	1 to 2		●
PCCARD-1553	PCMCIA	Lab	Single/Full Function	BusTools	Com	1	●	●
PMC1553E	PMC	Lab and rugged				1 or 2		
Q104-1553	PC/104	Rugged	Single/Full Function	BusTools	Com XT	1 to 4		●
QCP-1553	cPCI	CC, Lab, Rugged	Single/Full Function	BusTools	Com XT	1 to 4	●	●
QPCI-1553	PCI	Lab	Single/Full Function	BusTools	Com XT	1 to 4	●	●
QPM-1553	PMC	CC, Lab, Rugged	Single/Full Function	BusTools	Com XT CC	1 to 4		●
QPMC-1553	PMC	CC, Lab, Rugged	Single/Full Function	BusTools	Com XT CC	1 to 4		●
QVME-1553	VME	CC, Lab, Rugged	Single/Full Function	BusTools	Com XT	1 to 4	●	●
QVXI-1553	VXI	Lab	Single/Full Function	BusTools	Com	1 to 4	●	●
VME-1553	VME	CC, Lab, Rugged	Single/Full Function	BusTools	Com XT	1, 2 or 4	●	●



## 10MBit 1553

This advanced solution offers a less expensive architecture than regular 1Mbit 1553, while providing up to 10 times the data throughput. This interface is an excellent choice for flight controls, actuators, electro-pneumatic controllers or similar applications of standard 1553 requiring higher data rates.

	Form Factor	Application	Operating Mode	Temp Range	# Channels	IRIG Time Code Option	Coupling
P-10SF	cPCI, PCI, PMC	Lab, Rugged	Single	Com XT	1 to 8		Factory
PMC-MMSI	PMC	Lab, Rugged	Single	Com XT	12	●	Factory



# i/o & communications

Audio . . . . .	42
Graphics & Video . . . . .	42
Bus Adapters . . . . .	43
dataBLIZZARD . . . . .	43
PCI Express Expansion . . . . .	44
PCI/PCI-X Expansion . . . . .	44
VMEbus Repeaters . . . . .	44
AdvancedTCA Carriers . . . . .	45
Carrier Cards . . . . .	46
Ethernet Interfaces . . . . .	48
Ethernet Switches . . . . .	50
Analog I/O . . . . .	52
Digital I/O . . . . .	53
DSP-Based I/O . . . . .	54
IndustryPack Modules . . . . .	56
Serial I/O . . . . .	58
Packet Processors . . . . .	58
Other I/O . . . . .	59
Intelligent I/O Controllers . . . . .	60
InfiniBand Switches . . . . .	60
InfiniBand HCAs . . . . .	60
Fabric Interface . . . . .	60
Fibre Channel HBAs . . . . .	61
Reflective Memory . . . . .	61
Telemetry Systems . . . . .	63
Storage Controllers . . . . .	62
On-board Storage . . . . .	62
Special Function AMCs . . . . .	62
WAN DS3/E3 Interfaces . . . . .	63
WAN T1/E1/J1 Interfaces . . . . .	63
WAN OC-3/OC-12 Interfaces . . . . .	64

## Audio

Our Audio PMCs are SoundBlaster®-compatible audio cards capable of interfacing to a single stereo line input, stereo auxiliary input, a microphone, and a mono input, as well as amplifier-driven stereo speaker outputs, hardware volume control, and a mono output.

### Notes

PMC-AUDIO-BP

General purpose SoundBlaster®-compatible audio PMC with rear I/O

PMC-AUDIO-CC

Conduction cooled SoundBlaster®-compatible audio PMC with rear I/O; extended temperature range

PMC-AUDIO-FP

General purpose SoundBlaster®-compatible audio PMC with front and rear I/O; conformal coating available



## Graphics & Video

We offer high-resolution, high-performance graphics I/O solutions for embedded video and display applications. Our graphics subsystems are based on high-performance commercial silicon for state-of-the-art image quality and capabilities.

	Form Factor	Chip Set	I/O	Cooling	Conformal Coating	Extended Temperature Range
G2 Graphics PMC Module	PMC	ATI Radeon® 9000	Dual Display Output, Multiple Video Input and Display Output, Single Display Output	Commercial, Extended and Conduction Cooled	Option	Yes
G2 Riser Modules	PMC		Dual Display Output, Multiple Video Input and Display Output, Single Display Output	Commercial Grade		
GRA110	3U VPX	NVIDIA® G73 graphics processor	DVI, NTSC and PAL, RS170, VGA	Air- and Conduction Cooled	Option	Yes
Octegra3	6U VME	MPC7447A G4 PowerPC®, 3DLabs P9	Dual Display output, Video input via VIM2, Gigabit Ethernet, serial comms	Air- and Conduction Cooled	Option	Yes
PMC-VIDEOPLUS	PMC	SM Lynx3DM8+	DB15	Convection	Option	N/A
PMCGA3	PMC	3DLabs P9 VPU	Multiple Video/ TV formats, RS170	Air- and Conduction Cooled	Option	Yes
PMCGA4	PMC	3DLabs P10 VPU	Multiple Video/ TV formats, RS170	Air- and Conduction Cooled	Option	Yes
SE1	VME - Pentium M	Mobile Intel® 915 GM	ZeSST VME, Gigabit Ethernet, Keyboard and Mouse, Serial (2), USB (2)	Commercial, Air-cooled	No	No
Sentiris S4110	PMC	NVIDIA® Quadro4	Multiple outputs	Convection	Option	Option
Telum 2001-VGA	AMC	SM Lynx3DM8+	DB15	Convection	N/A	N/A
TS-MPEG-4 Bundle	PMC	Altera Stratix FPGA	RS-170, RTP over UDP	Air- and Conduction Cooled	Option	Yes
TS-RS-170 Video Capture PMC	PMC	Altera Stratix FPGA	RS-170	Air- and Conduction Cooled	Option	Yes
VIM2	Mezzanine	Virtex-4	2x TV, 2x RGB, 2x DVI	Air- and Conduction Cooled	Option	Yes

Note: The MAGIC1 graphics, video and processing systems computer can be found on page 6.

## Bus Adapters

GE Fanuc Embedded Systems bus adapters directly connect two buses. The virtual bus created allows the two systems to operate as one for seamless operation, superior performance, and the combined benefits of two systems.

	Cards Included	Memory Mapping	Controller Mode DMA (MB/s)	Slave Mode DMA (MB/s)	Cable Interface	Interrupts	Optional Dual Port RAM	Loopback Diagnostic
414	2 VME	●	35	N/A	Fiber to 500m	2 Programmed, IRQ1-7	128 KB & 8 MB	
616	1 PCI, 1 VME	●	N/A	N/A	Copper to 25ft	2 Programmed, IRQ1-7	128 KB & 8 MB	
618-3	1 PCI, 1 VME	●	35	13	Fiber to 500m	2 Programmed, IRQ1-7	128 KB & 8 MB	●
800	2 VME64	●	70	N/A	Fiber to 500m	2 Programmed, IRQ1-7	128 KB & 8 MB	●
810	1 PCI, 1 VME64	●	70	N/A	Fiber to 500m	2 Programmed, IRQ1-7	128 KB & 8 MB	●
820	1 PMC, 1 VME64	●	70	N/A	Fiber to 500m	2 Programmed, IRQ1-7	128 KB & 8 MB	●
830	1 cPCI, 1 VME64	●	70	N/A	Fiber to 500m	2 Programmed, IRQ1-7	128 KB & 8 MB	●

## dataBLIZZARD

Coupling software and hardware efficiency, the dataBLIZZARD™ point-to-point systems communication interface moves data at high sustained transfer rates with minimal processor overhead.

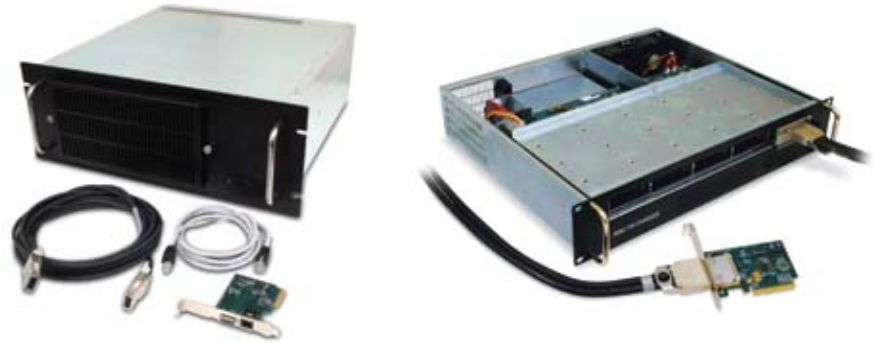
	Cards Included	Memory Mapping	Controller Mode DMA (MB/s)	Cable Interface	Interrupts	Semaphores per card
DB0-PCI-PCI	2 PCI	●	95	Fiber to 500m	2 Programmed	7
DB0-PCI-PMC	1 PCI, 1 PMC	●	95	Fiber to 500m	2 Programmed	7
DB0-PMC-PMC	2 PMC	●	95	Fiber to 500m	2 Programmed	7



## PCI Express Expansion

These systems allow you to migrate to PCI Express and preserve legacy PCI cards, or access AdvancedMC modules from a host computer with a free PCI Express slot. The systems are designed for high throughput, enhanced system functionality and ease of use. See product datasheets for details.

	Host Data Bus	Slots Available	Enclosure	Host Card	Backplane Controller	Cable Included
PCIE-AMC-7S	PCI Express	(1) x4, single-wide, full-size AMC, (2) x2, single-wide, mid-size AMC, (4) x4 single-wide, mid-size AMC	2U, 19-inch rackmount	PCI Express x8	AdvancedMC backplane controller card	•
PCIE-PCIX-7S	PCI Express	(1) 64-bit/133 MHz, (2) 64-bit/100 MHz, (4) 64-bit/66 MHz	4U, 19-inch rackmount	PCI Express x4	Integrated	•
PCIE-PCIX-7S-LP	PCI Express	(1) 64-bit/133 MHz, (2) 64-bit/100 MHz, (4) 64-bit/66 MHz	4U, 19-inch rackmount	Low profile PCI Express x4	Integrated	•



## PCI/PCI-X Expansion

GE Fanuc Embedded Systems expansion systems offer a simple, cost-effective way to add PCI slots. These products feature independent operation of host and expansion buses, as well as low latency and high throughput for maximum performance. Individual PCI expansion cards are also available. See product datasheets for details.

	Family	Host Data Bus	5V Slots Available	Enclosure	Cooling Fans	Expansion Bays	Backplane Controller	Power Supply
2123A	32-bit	32-bit/33 MHz PCI	(13) 32-bit/33 MHz	19-inch rackmount	(1) 116 CFM (1) 44 CFM	None	210-2A card	420 Watts
2131	32-bit	32-bit/33 MHz PCI	(7) 32-bit/33 MHz	ATX mini-tower	(1) 27.5 CFM	(2) 3.5"; (2) 5"	Integrated	300 Watts
2132	32-bit	32-bit/33 MHz PCI	(7) 32-bit/33 MHz	19-inch rackmount	(2) 42.5 CFM	None	Integrated	300 Watts
OS-PR107	Omnispan®	64-bit/33 MHz PCI	(7) 64-bit/33 MHz	19-inch rackmount	(2) 42.5 CFM	None	Integrated	300 Watts

## VMEbus Repeaters

Our bus repeaters extend a VMEbus backplane from one chassis to a second chassis. Both chassis operate as one unit, controlled by the system controller in the primary chassis.

	Media Cable	Distance	Connector Type	Data Transfers	Addressing	Link Mode	Require System Controller
VME-5504L	Flat Cable	1000 ft	DIN	16, 32, 8	16	Software transparent	•
VME-5531L	Fiber Optic Cable	5 ft to 6,560 ft	DIN	16, 32, 8	16, 24, 32	Software transparent	
VME-5532L	Fiber Optic Cable	5 ft to 6,560 ft	DIN	16, 32, 8	16, 24, 32	Software transparent	

## AdvancedTCA Carriers

GE Fanuc Embedded Systems offers AMC compliant, 2 or 4 bay AdvancedTCA® carrier blades supporting extended full-height AMCs.

	Chassis	Architecture	Front Access Bays	Slot Compliance	IPMI Version
AT-AMC1	ATCA System	AMC.1	2 for extended full-size, double-wide AMCs, 4 for extended full-size, single-width AMCs	AMC.1 Type 4, AMC.1 Type 8, AMC.2 Type E2, AMC.3	v1.5
AT-AMC2	ATCA System	AMC.2	2 for extended full-size, double-wide AMCs, 4 for extended full-size, single-width AMCs	AMC.2 Type 2/4, AMC.2 Type E2, AMC.3	v1.5



## Free Newsletter Subscriptions Available

As a service to customers, GE Fanuc Embedded Systems issues several e-newsletters that address specific vertical market interests. These newsletters are distributed by email on a monthly or quarterly basis to interested parties. You may subscribe to one or all of them; subscription is free and you may cancel at any time. To establish a subscription, visit our web site at [www.gefanucembedded.com](http://www.gefanucembedded.com)

### AdvancedMC Insider:

The AdvancedMC™ Insider is a monthly publication that offers subscribers valuable information regarding the AdvancedMC form factor and other telecommunication technologies. You will receive periodic updates on technology developments, market trends, new product releases and future plans for the technology.

### Mil&Aero Insider:

Our Mil&Aero Insider is a quarterly newsletter that will keep you updated with the latest information on GE Fanuc Embedded Systems military and aerospace products. Learn about innovative applications ranging from benign through rugged to flight-quali-

fied. This publication has a razor sharp focus on discussing and addressing the specific needs encountered in the military and aerospace industry.

### GE Fanuc Embedded Insider:

Our GE Fanuc Embedded Insider covers a broad range of technologies for military, telecommunications, medical, transportation and industrial applications. Learn about our latest products and discover the latest trends in technology.



# Carrier Cards

GE Fanuc Embedded Systems carrier cards offer a range of I/O expansion solutions for cPCI, PCI, PMC and PC•MIP® based systems.

	Form Factor	Capacity	Notes
BIO-1	cPCI		Rear panel transition board for cPCI-100A
BIO-4	cPCI		Rear panel transition board for cPCI-200A; has 50-pin SCSI-2 style latching shielded connectors
CAR-3CCPMC1	cPCI 3U	1 PMC	CAR-3CCPMC1 is designed to interface a PMC Mezzanine card to the cPCI bus in rugged environmental conditions.
CP-613	cPCI 6U	2 PMC, PC•MIP®	For systems that require front- or rear-panel I/O in a single 6U cPCI slot.
CP-620-5V	cPCI 6U	2 PMC	Holds two PMCs with front- or rear-panel I/O support; single slot solution
CP-640	cPCI 6U	2 PMC	Full hot swap capable; holds up to 2 PMCs with front- or rear-panel I/O support; single slot solution
CP-640-3	cPCI 6U	2 PMC	Full hot swap capable; holds up to 2 PMCs with front- or rear-panel I/O support; single slot solution
CP-641	cPCI 6U	2 PMC	Full hot swap capable mezzanine carrier board; holds up to 2 PMCs with front- or rear-panel I/O support; single slot solution
CP236	cPCI 3U	1 PMC	Hot insertion capability; also available with the 6U or 3U faceplate
CP237	cPCI 6U	2 PMC	Multi-purpose PMC Expansion Card for CompactPCI
CP238	cPCI 6U	2 PMC	Multi-purpose PMC Expansion Card for CompactPCI
CPCI-100A-BP	cPCI 3U	2 IP	For 3U CompactPCI systems; has 2 IP sites and rear panel I/O
CPCI-100A-FP	cPCI 3U	2 IP	For 3U CompactPCI systems; has 2 IP sites and front panel I/O
CPCI-200A-FP	cPCI 6U	4 IP	For 6U CompactPCI systems; has 4 IP sites and front panel I/O
CPCI-200B-BP	cPCI 6U	4 IP	For 6U CompactPCI systems; has 4 IP sites and rear panel I/O; 3.3V/5V signalling; 8/32 MHz IP slots
CPMC1	cPCI 3U	1 PMC	Supports air and conduction cooling as well as front and rear I/O.
DCPMC	cPCI 6U	2 PMC	A Dual CompactPCI PMC Carrier (DCPMC) card in a conduction-cooled or rugged 6U form factor.
DCPMC64	cPCI 6U	2 PMC	Rugged dual CompactPCI 64-bit PMC carrier module in 6U form factor.
DPMCC			DPMCC is a Dual PCI Mezzanine Card Carrier designed as a companion to the V5B and V5C series embedded computers.
ICS-7002	PCI (Full Length)	2 PMC	The ICS-7002A is a full length PCI card capable of carrying two single-width PCI Mezzanine Card (PMC) modules. It allows the User I/O (Pn4) connectors of the two sites to be interconnected, or to be connected to external equipment in a flexible fashion.
ICS-7003	PCI (Full Length)	2 PMC	ICS-7003 is the first PCI form factor dual PMC carrier with PCI Express interface. Compatible with x8 and x16 PCI Express slots in late model workstation and server PCs, the ICS-7003 provides unmatched data transfer performance.
IMPCC1	3U cPCI	1 PMC	Single PMC carrier for 3U CompactPCI PowerPact product family
POCC1	6U VME	2 single width PMCs or 1 double width PMC	Dual PMC carrier in 6U VME form factor
PCI-40B	PCI	4 IP	For PCI-based systems; provides 4 IP slots; 3.3V/5V signalling; 8/32 MHz IP slots
PCI-40B-R	PCI	4 IP	For PCI-based systems; provides 4 IP slots; 3.3V/5V signalling; 8/32 MHz IP slots; reduced memory version
PCI-60A-8/32	PCI	6 IP	For PCI-based systems; provides 6 IP slots; 8/32 MHz IP slots



	Form Factor	Capacity	Notes
PEX430	VPX	1 PMC or XMC	Provides both a PCI Express switch and mezzanine carrier for building VPX systems
PMC237	6U single slot VMEbus	3 PMC	PMC expansion card for VME systems
PMC239/F	PCI		PCI to PMC adapter with fan
PP-600	6U x 80mm		Provides flexible access to 128 lines of rear I/O for 6U CompactPCI (cPCI) carrier cards
TM-683	6U x 80mm		Transition module providing flexible access for the 128 lines of rear-panel I/O
TPMCC	VME 6U	3 PMC	TPMCC is a Triple PCI Mezzanine Card Carrier designed as a companion to the VSC series embedded computers.
VIPC326-ET6U	6U VMEbus	2 IP	For 6U VMEbus; provides 2 IP slots; extended temperature range of -40° to +85°C; programmed interrupts; ribbon I/O
VIPC327-ET6U	6U VMEbus	2 IP	For 6U VMEbus; provides 2 IP slots; extended temperature range of -40° to +85°C; programmed interrupts; ribbon ejectors
VIPC626-ET	6U VMEbus	4 IP	For 6U VMEbus; provides 4 IP slots; extended temperature range of -40° to +85°C; programmed interrupts; ribbon I/O
VIPC627-ET	6U single slot VMEbus	4 IP	For 6U VMEbus; provides 4 IP slots; rear I/O available for slots C & D; extended temperature range of -40° to +85°C; programmed interrupts; ribbon I/O
VIPC628-ET	6U single slot VMEbus	4 IP	For 6U VMEbus; provides 4 IP slots; extended temperature range of -40° to +85°C; programmed interrupts; shielded I/O
VIPC664-ET	VME 6U	4 IP	For 6U VME64x; provides 4 IP slots and has rear panel I/O; extended temperature range of -40° to +85°C; programmed interrupts
VIPC8243	6U single slot VMEbus	4 IP	Intelligent 4-slot IP carrier for 6U VMEbus; 250 MHz PPC8240 CPU; 64MB SDRAM; 1 + 8MB FLASH memory; 10/100BaseT Ethernet interface
VIPC8244	6U single slot VMEbus	4 IP	Intelligent 4-slot IP carrier for 6U VMEbus; 250 MHz PPC8240 CPU; 64MB SDRAM; 1 + 8MB FLASH memory; 10/100BaseT Ethernet interface; SCSI interface
XM-664-60			Transition module; 60x178 for VIPC664-ET
XM-664-80			Transition module; 80x233 for VIPC664-ET

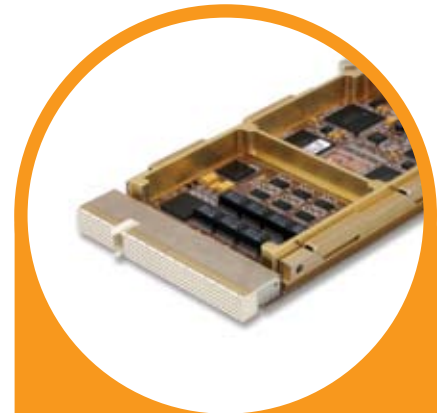


## Ethernet Interfaces

High speed networking is critical to many embedded applications. Our Gigabit Ethernet cards are designed to relieve bandwidth bottlenecks by adding Gigabit Ethernet to CompactPCI®, VMEbus, AdvancedTCA® and MicroTCA™ applications. We offer a number of form factors and a range of ruggedization levels.

	Form Factor	Media	Interface	Ports	Front Panel I/O Connectors	Rear Panel I/O Connectors
CP3-QUAD100TX	cPCI 3U	Copper	10/100BaseTX	4	RJ-45	
PMC-GBIT-DT2BP	PMC	Copper	10/100/1000BaseT	2		RJ-45
PMC-GBIT-DT2CC	PMC	Copper	10/100/1000BaseT	2		RJ-45
PMC494	PMC	Copper	10BaseT	3		J4
PMC610	PMC	Copper	10/100BaseTX	4	RJ-45	
PMC610J4	PMC	Copper	10/100BaseTX	4		J4
PMC613FX	PMC	Fiber	100BaseFX	1	SC	
PMC615	PMC	Copper	10/100BaseTX	4		J4
PMC618	PMC	Fiber	100BaseSX	4	LC	
PMC673	PMC	Fiber	1000BaseSX	3	LC	
PMC673TX	PMC	Copper	10/100/1000BaseT	3	RJ-45	
PMC675	PMC	Fiber	100BaseFX	2	SC	
PMC676	PMC	Fiber	10/100/1000BaseSX	2	SC	
PMC676TX	PMC	Copper	10/100/1000BaseT	2	RJ-45	
PMC677	PMC	Fiber	1000BaseSX	4	LC	
PMC677TX	PMC	Copper	1000BaseT	4	RJ-45	
PMC682/E	PMC	Copper	10/100BaseTX	1	RJ-45	
PMC695	PMC	Fiber	1000BaseSX	1 1000BaseSX+1 RS232+1 10/100BaseT	SC	
PMC695TX	PMC	Copper	1000BaseT	1 1000BaseT+1 RS232+1 10/100BaseT	RJ-45	
PMC696	PMC	Fiber	1000BaseSX	2	LC	
PMC696TX	PMC	Copper	10/100/1000BaseT	2	RJ-45	
RM610	PCI	Copper	10/100BaseTX	4	RJ-45	
RM666FX	PCI	Fiber	100BaseFX	2	SC	
RM675	PCI	Fiber	1000BaseSX	2	LC	
RM675TX	PCI	Copper	10/100BaseTX	2	RJ-45	
RM676	PCI	Fiber	1000BaseSX	2	SC	
RM676TX	PCI	Copper	10/100/1000BaseT	2	RJ-45	
RM677	PCI	Fiber	1000BaseSX	4	LC	
RM677TX	PCI	Copper	10/100/1000BaseT	4	RJ-45	
Telum GE-QT	AMC	Copper	10/100/1000BaseT	4	RJ-45	
VD-FOE	SW					
XD-FOE	SW					

	Hot swap capable
Intel® 82546	Requires PIM-GBIT-DT
Intel® 82546	Conduction cooled; Requires PIM-GBIT-DT
	10BaseT to 10Base2 media converter with 3 additional Ethernet port routed to rear
Intel® 82551ER	Optional 2 ports on front panel
Intel® 82551ER	Optional 2 ports routed to rear panel
Intel® 82551	Options: 2 ports; ST connectors
Intel® 82551ER	
AMD 79C975	
Intel® 82544	Options: 1000BaseLX
Intel® 82544	
	Options: 10/100BaseT; ST and LC connectors
Intel® 82546	Options: single port (Intel 82545), 1000BaseLX, LC connectors; Solaris LAN Boot
Intel® 82546	Single port optional; Solaris LAN Boot
2 x Intel® 82546	1000BaseLX optional
2 x Intel® 82546	
Intel® 8255ER	
Intel® 215555	Options: 1000BaseLX; LC connectors
Intel® 215555	
	Options: 1000BaseLX
Intel® 82559ER	Dual port version available
Intel® 82546	LC and ST connectors available
	SC connectors available
Intel® 82546	Options: single port (Intel 82545), 1000BaseLX, LC connectors; Solaris LAN Boot
Intel® 82546	Options: single port (Intel 82545); Solaris LAN Boot
Intel® 82546	1000BaseLX optional
Intel® 82546	
Intel® 82571EB	AMC.0 & AMC.1 compliant; RoHS compliant
	Port Failover software for GbE NICs running VxWorks
	Port Failover software for GbE NICs running Windows XP



### 1394B-3CPCI

This conduction cooled, 3U CompactPCI® card provides four nodes (eight ports) of IEEE-1394B and one node (two ports) of USB 2.0 serial data communications. Each of the eight 1394B ports is hardware programmable and can support a maximum data rate of 100 Mbit/s (transformer coupled S100B), while the USB 2.0 ports provide for a maximum speed of 480 Mbits/s. It also offers PCI bus master capability for DMA transfers.

# Ethernet Switches

GE Fanuc Embedded Systems offers an unmatched range of Ethernet switches for a broad range of application types, from telecom and networking to government and military. We offer mixed copper and fiber front panel ports, and managed, unmanaged and configuration managed switches.

	Form Factor	Management	Ethernet Ports	Notes
NETernity™ CP3-GESW12M3	cPCI 3U	Managed	10 - 10/100/1000BaseT	
NETernity™ CP3-GESW12M3N	cPCI 3U	Managed	10 - 10/100/1000BaseT	Conduction cooled
NETernity™ CP3-GESW12M3R	cPCI 3U	Managed	10 - 10/100/1000BaseT	Rugged, air cooled
NETernity™ CP3-GESW8	cPCI 3U	Unmanaged	8 - 10/100/1000BaseT	1 front access and 7 rear access ports
NETernity™ CP3-GESW8N	cPCI 3U	Unmanaged	8 - 10/100/1000BaseT	Conduction cooled; 1 front access and 7 rear access ports
NETernity™ CP6-GESW24M3	cPCI 6U	Managed	24 - 10/100/1000BaseT	Hot swap capable; PICMG 2.1 and 2.16 compliant
NETernity™ CP6-GESW24M3N	cPCI 6U	Managed	24 - 10/100/1000BaseT	Conduction cooled; hot swap capable; PICMG 2.1 & 2.16 compliant
NETernity™ CP6-GESW24M3R	cPCI 6U	Managed	24 - 10/100/1000BaseT	Rugged, air cooled; hot swap capable; PICMG 2.1 & 2.16 compliant
NETernity™ CP921RC	cPCI 6U	Managed	24-10/100/1000BaseT	OpenWare™; IPv6 enabled; PICMG 2.16 and RoHS compliant
NETernity™ CP940	cPCI 6U	Unmanaged	8 - 10/100BaseTX	Rear I/O; Industrial temp available
NETernity™ CP941	cPCI 6U	Unmanaged	8 - 10/100BaseTX	Front I/O; Industrial temp available
NETernity™ CP945FP-12	cPCI 6U	Unmanaged	12 - 10/100BaseTX	Front I/O
NETernity™ CP948	cPCI 6U	Unmanaged	8 - 10/100BaseTX+ 4 100BaseFX	Front I/O
NETernity™ CPX24	6U cPCI	Managed	24-10/100/1000BaseT	IPv6 support; all ports routed to rear I/O; 2-10Gb uplink ports; PICMG 2.16 compliant; optional 1000BaseSX or 1000BaseLX fiber ports or mixed copper and fiber ports; unmanaged version available
NETernity™ GBX16	6U VME	Managed	16- 10/100/1000BaseT	IPv6 support; optional 12 - 10/100/1000BaseT and 4 - 1000BaseSX or 1000BaseLX fiber ports; Air-cooled and conduction-cooled formats available
NETernity™ GBX410	3U VPX	Managed	12- 10/100/1000BaseT, plus 4- 1000BaseSX optics	Unmanaged version available; air- an conduction-cooled formats available
NETernity™ PMC941	PMC	Unmanaged	8 - 10/100BaseTX	Industrial temp available
NETernity™ PMC941FX	PMC	Unmanaged	4 - 100BaseFX + 4 - 10/100BaseTX	Fiber ports are front access with LC connectors; copper ports are routed to rear I/O
NETernity™ PMC942	PMC	Unmanaged	7 - 10/100/1000BaseT	4 front panel ports with RJ-45 connectors and 3 rear I/O ports
NETernity™ PMCE4R	PMC	Unmanaged	8- 10/100BaseT	Air- and conduction cooled formats available; Optional Nuclear Event Detect (NED)
NETernity™ RM921	VME 6U	Managed	24 - 10/100/1000BaseT	OpenWare switch management environment; IPv6 switching & routing; all ports front I/O; 12-port version available; ports can be copper, fiber or a mix;100BaseFX port option
NETernity™ RM922RC	VME 6U	Managed	24- 10/100/1000BaseT	OpenWare™; IPv6 enabled; rear I/O; RoHS compliant
NETernity™ RM940	VME 6U	Unmanaged	8 - 10/100BaseTX	Options: conduction cooling; Industrial temp
NETernity™ RM941	VME 6U	Unmanaged	8 - 10/100BaseTX	Front I/O; RJ-45 connectors; Industrial temp available
NETernity™ RM942	VME 6U	Unmanaged	8 - 10/100BaseFX	
NETernity™ RM943/10	VME 6U	Unmanaged	8 - 10/100/1000BaseT	Option: 6 ports 10/100/1000BaseT + 2 ports 1000BaseSX



	Form Factor	Management	Ethernet Ports	Notes
NETernity™ RM945FP-12	VME 6U	Unmanaged	12 - 10/100BaseTX	Front I/O; RJ-45 connectors
NETernity™ RM947IND	VME 6U	Unmanaged	8 - 10/100BaseTX+2 10BaseFL+1 10Base2	Industrial temperature
NETernity™ RM948	VME 6U	Unmanaged	8 - 10/100BaseTX+4 100BaseFX	
CP3-GESW-TM10	cPCI 3U			Rear transition module for NETernity™ CP3-GESW12 switches; RS232 interface
CP3-GESW8-TM8	cPCI 3U			Rear transition module for NETernity™ CP3-GESW8 family switches
CP6-GESW-TM24	cPCI 6U			Rear transition module for NETernity™ CP6-GESW24 switches; RS232 interface
TRCP940	cPCI 6U		8 - 10/100BaseTX	Transition module for CP940 switch
TRCP9XXRC-12	PICMG 2.16 compliant		12 - 10/100/1000BaseT	Transition module for CP944, CP946, CP920 and CP921RC switches; RoHS compliant
TRCP9XXRC-5	PICMG 2.16 compliant		5 - 10/100/1000BaseT	Transition module for CP944, CP946, CP920 and CP921RC; RoHS compliant
TRCP9XXRC	PICMG 2.16 compliant		24 - 10/100/1000BaseT	Transition module for CP944, CP946, CP920 and CP921RC; RoHS compliant
TRRM922RC			24 - 10/100/1000BaseT	Transition module for RM922RC; RoHS compliant
TRRM940	6U VMEbus		8 - 10/100BaseTX	Transition module for RM940 switch



# Analog I/O

We offer a range of analog-to-digital and digital-to-analog converters designed for general purpose and industrial use.

## INPUT

	Form Factor	Function	Channels	Resolution	Max Sampling Rate / Conversion Frequency*	Temp (C)
VME-3113A	VME	Input	64D, 64SE	12-Bit	33 kHz	0° to +55°
VME-3122	VME	Input	64D, 64SE	16-Bit	100 kHz	0° to +55°
PMC-AD16-ETB	PMC	Input	32D/16SE rear	16-Bit	83 kHz	-40° to +85°
VME-3123	VME	Input	16D	16-Bit	1.7 MHz	0° to +55°
VME-3128	VME	Input	64D, 64SE	14-Bit	58 kHz	0° to +55°

D = Differential, SE = Single-Ended, \*Aggregate Frequency

## OUTPUT

	Form Factor	Function	Channels	Resolution	Output Settling Time	Temp (C)
PMC-DA16-ETB	PMC	Output	8 SE rear	16-Bit	10 usec	-40° to +85°
VME-4116	VME	Output	8	16-Bit	10 usec	0° to +55°
VME-4120	VME	Output	16	12-Bit	1.7 msec	0° to +55°
VME-4132	VME	Output	32	12-Bit	3.4 msec	0° to +55°
VME-4140	VME	Output	32	12-Bit	10 usec	0° to +55°
VME-4145	VME	Output	4	16-Bit	400 nsec	0° to +55°

SE = Single-Ended

## INPUT / OUTPUT

	Form Factor	Function	Channels	Resolution	Conversion Frequency / Output Settling Time	Temp (C)
VME-4514A	VME	Input / Output	16	12-Bit	33 kHz / 1.7 msec	0° to +55°



### BCT4-AMC1

This unique carrier card was developed in close cooperation with IBM® in order to give system designers access to the powerful technology of both the BladeCenter® and the AdvancedMC™. GE Fanuc Embedded Systems offers IBM BladeCenter carriers which can accept up to four AdvancedMCs per carrier. The modules are also capable of being monitored and managed by BladeCenter system management software.

BCT4-AMC1 enables high-performance solution-specific blades to be built using a wide variety of AdvancedMC modules. The carrier blade provides 2 hot swappable front panel bays for I/O AdvancedMCs, and 2 internal bays for processor and storage AdvancedMCs. It also can generate and distribute a master clock for the platform.

The BCT4-AMC1 is perfect for system designers creating high-performance telecommunications solutions using standard off-the-shelf AdvancedMC modules with specific networking features such as LAN/WAN and storage capabilities. AdvancedMC modules allow BladeCenter servers to be optimized for next generation IP Multimedia Subsystem (IMS) and Fixed Mobile Convergence (FMC) IP-centric applications.

# Digital I/O

For applications requiring reliable input and output of analog and digital signals, our digital I/O cards provide a variety of interfaces to connect to special function devices.

	Form Factor	Function	Interface	Channels	Temp
PIO-2	VME	Input/Output	Opto-Isolated Inputs/Outputs- Backplane	32	All Ranges
PMC-TTL64-ET	PMC	Input/Output	Unbuffered TTL Inputs/Outputs	64	-40° to +85°
PMCPIO1	PMC	Input/Output	16 Bi-Directional TTL & 16 Solid State Relay	32	All Ranges
PMC-DIO-ETB	PMC	Input/Output	24V Opto-Isolated Inputs/Outputs- Backplane	16	-25° to +85°
PMC-DIO-ETF	PMC	Input/Output	24V Opto-Isolated Inputs/Outputs- Front Panel	16	-25° to +85°
VME-2528	VME	Input/Output	TTL Inputs/Outputs	128	0° to +55°
VME-2510B	VME	Input/Output	TTL Inputs/Outputs	64	0° to +55°
VME-2532A	VME	Input/Output	TTL Inputs/Outputs	32	0° to +55°
VME-2534	VME	Input/Output	32 High-Voltage Outputs, 32 High-Voltage Inputs, 0-60VDC- Backplane	32	0° to +55°
VME-2536	VME	Input/Output	32 Opto-Isolated Outputs, 32 Opto-Isolated Inputs, 5-125VDC - Front Panel	32	0° to +60°
VME-2540	VME	Input/Output	RS-422 Differential w/ Single-Ended TTL Inputs	24	0° to +65°
VME-1182	VME	Input	Opto-Isolated Inputs- Front Panel	64	0° to +55°
VME-1184	VME	Input	Opto-Isolated Inputs- Backplane	32	-5° to +70°
VME-1111	VME	Input	0-66VDC Buffered Inputs with Debounce- Front Panel	64	0° to +55°
VME-1128	VME	Input	0-66VDC Buffered Inputs-Front Panel	128	0° to +55°
VME-1129	VME	Input	0-66VDC Buffered Inputs with Debounce- Front Panel	128	0° to +55°
VME-1150	VME	Input	5-48VDC Opto-Isolated Inputs- Front Panel	64	0° to +55°
VME-1160A	VME	Input	5-48VDC Opto-Isolated Inputs- Front Panel	32	0° to +55°
VME-2128	VME	Output	High Voltage Buffered Outputs- Front Panel	128	0° to +55°
VME-2120	VME	Output	High Voltage Buffered Outputs- Front Panel	64	0° to +55°
VME-2131	VME	Output	High Current Buffered Outputs- Front Panel	64	0° to +55°
VME-2170A	VME	Output	32 High Current Opto-Isolated Outputs- Front Panel	32	0° to +55°
VME-2210	VME	Output	Relay Outputs- Front Panel	64	0° to +55°
VME-2232	VME	Output	Relay Outputs- Front Panel	32	0° to +55°
VME-2533	VME	Output	RS422/485	32	0° to +55°

## DSP-Based I/O

Highly versatile, DSP-based I/O products provide an interface between the cPCI or VME bus and a flexible array of inputs and outputs.



	Form Factor	Inputs
DIO1-6CP	cPCI 6U	16 HLD; 16 TTL Level Discrete; 16 HLD Loopback; 16 Differential Logic
DIO1-cPCI-CC	cPCI 3U	8 Bi-Level Optically Coupled
DIO1-VME-CC	VME	120 A/D
DIO2-cPCI-CC	cPCI 3U	8 TTL Bi-Level Discrete
DIO2-VME-CC	VME	2 50-kHz Serial Differential Inputs; 20 High-Level 16-Bit Differential Analog
DIO3-cPCI-CC	cPCI 3U	32 0 to 28 Volt Discrete; 4 Analog Frequency; 11 High-Level Single Ended Analog; 28 Low-Level Differential Analog; 2 Frequency Gear Sensor
DIO3-VME-CC	VME	32 Analog-to-Digital Converter (ADC)
DIO4-cPCI-CC	cPCI 3U	24 Discrete Ground/Open 0 to 28 V; 16 TTL Level Discrete; 16 HLD Loopback

## Added security for network applications

Network administrators are increasingly turning to deep packet inspection at full Gigabit Ethernet line rates. This level of control is necessary to manage traffic flow and security, and the Cavium OCTEON™ is the processor of choice for these demanding high speed applications, including network address translation.

With our single width AdvancedMC™ module, you can create content-aware applications in one MicroTCA™ slot or AdvancedTCA® bay. This allows you to quickly build devices such as Session Border Controllers, Media Gateways, Edge Routers, Firewalls and Video Services Switches.

The Telum™ NPA-38x4 has a high-end Cavium Octeon 12-core CN3850-SCP secure communications processor and 512MB of high-speed DDR2 memory. The Cavium processor supports dual-issue, five-stage pipeline and optimized latencies as well as auto instruction pre-fetching and advanced data pre-fetching features to minimize memory delays.

High-speed communications are enabled by four lanes of GbE

(AMC.2 Type 4) to the Fat Pipes Region of the AdvancedMC connector. For control purposes, two lanes of GbE are provided to AMC ports 0 and 1 in the Common Options Region.

The Telum NPA-38x4 is a single-width module available in full-size or mid-size form factor. It supports multiple configuration options including four front panel ports of GbE supporting IEEE 1000BaseT or 1000BaseSX via small form-factor pluggable (SFP) transceivers, or 4 ports of GbE to the AdvancedMC connector for rear transition module (RTM) support.

GE Fanuc Embedded Systems is a leader in AdvancedMC design with more

than a dozen modules in production, including this Cavium-based packet processor which is deployed in customer applications. This experience allows us to offer you the comfort and security you need to make your networks more secure.





Outputs	Bidirectional	Temp (C)	Cooling
16 Differential Logic; 16 Discrete Ground/Open; 16 TTL Level Discrete;	1 Analog Interface; 8-Channel 10-Bit ADC for monitoring the power supply secondary voltages	-40° to +85°	Conduction Cooled
8 Bi-Level Optically Coupled	16 Individually Programmable General Purpose TTL I/O	-40° to +85°	Conduction Cooled
104 General Purpose; 8 Software Programmable; 8 High Current	None	-40° to +85°	Conduction Cooled
16 Discrete 300 mA 28 V; 16 Discrete Open Collector Outputs; 32 Discrete Source 28 V; 8 TTL Bi-Level Discrete; 1 Four Coil Stepper Motor	1 Analog Interface; 8-Channel 10-Bit ADC for monitoring the power supply secondary voltages	-40° to +85°	Conduction Cooled
2 50-kHz Serial Differential; 20 High-Level 16-Bit Differential Analog	None	-40° to +85°	Conduction Cooled
6 DC Programmable Analog -10 to +10V; 4 Excitation +/-10 Volt	1 Analog Interface - 8-Channel 10-Bit ADC for monitoring the power supply secondary voltages	-40° to +85°	Conduction Cooled
32 General Purpose Outputs; 1 Tone Generator	None	-40° to +85°	Conduction Cooled
16 TTL Level Discrete; 16 Discrete Ground/Open	1 Analog Interface; 8-Channel 10-Bit ADC for monitoring the power supply secondary voltages	-40° to +85°	Conduction Cooled

## Real Time Ethernet Networks

In theory, Ethernet is a great technology for real-time control networks. It is familiar, it is ubiquitous and it is cheap. But Ethernet has a serious drawback: there is no way to know exactly when a message will be delivered. Real-time networks have always been based on the certainty that when instructions are sent, they will be received and understood in about one millisecond.

The reason for Ethernet's unpredictability is the CSMA/CD bus access procedure (Carrier Sense Multiple Access with Collision Detection). CSMA/CD is a temperamental mailman who delivers mail unpredictably, and in the real-time world of machine control, this kind of chaos is simply unacceptable. So unless a true, dedicated connection can be introduced, Ethernet has no role in real-time networking.

### Switches offer real-time operation

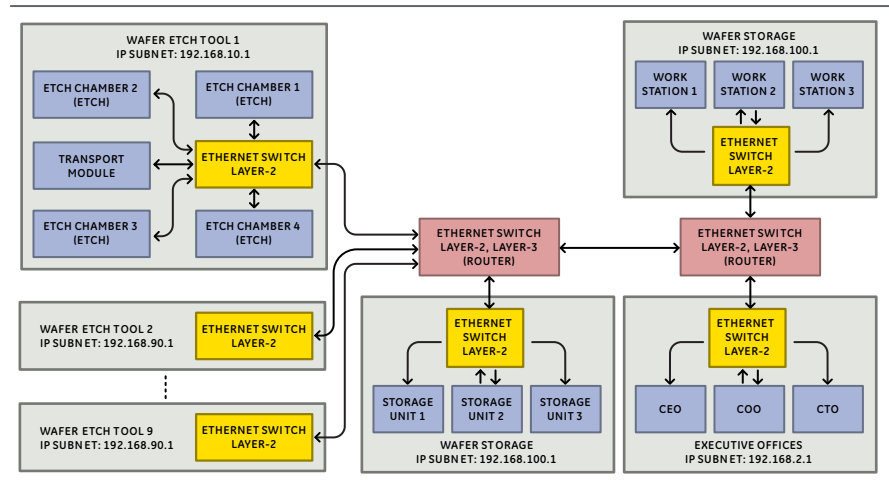
Fortunately, there is an innovative way to overcome this inherent limitation of Ethernet. It is based on the use of Ethernet switches and full duplex connections. An Ethernet switch decides which pathway a data packet takes from among the many possible paths through the network, and therefore offers the potential for control. The secret to real-time Ethernet is

to define an individual 'network' for every individual piece of terminal equipment, on which only that terminal equipment communicates.

By using two cable pairs for each connection, data packets can be sent and received simultaneously (full duplex operation). In this configuration, using full duplex and switching, two pieces of terminal equipment cannot get in the way of one another, and collisions involving two or more data transmissions are impossible (see Figure). The chaotic CSMA/CD

bus access procedure is no longer a factor, and Ethernet offers a real-time capability, which makes it suitable for industrial and defense applications.

For a complete description of this type of Ethernet network configuration, please download our white paper which is available at [www.gefanucembedded.com](http://www.gefanucembedded.com)



# IndustryPack Modules

IndustryPacks (IPs) and transition modules offer mix and match functionality in a simple-to-use modular form for demanding applications of all types.

	Product Description
IP-1553-STD	Single channel MIL-STD-1553B interface with variety of DDC chipset; memory and temperature options
IP-16ADC	Implements 16 single-ended or 8 differential 16-bit analog-to-digital conversion channels
IP-488	Provides talker, listener, and controller access to the IEEE-488 instrumentation bus
IP-AD16SS	8 channels simultaneously converting 16-bit analog-to-digital conversion; 40 KHz
IP-ALTERA-HD50	IP with user-programmable Altera FPGA; differential and TTL I/O; with HD50 cable kit
IP-ALTERA-IP50	IP with user-programmable Altera FPGA; differential and TTL I/O; with ribbon cable kit
IP-ALTERA-TTL	IP with user-programmable Altera FPGA; TTL I/O; with ribbon cable kit
IP-CM302-25-256	Communications IP with 25MHz MC68302 processor and 256K RAM; three TTL serial channels
IP-CM302-25-512	Communications IP with 25MHz MC68302 processor and 512K RAM; three TTL serial channels
IP-DAC	Provides 6 channels of 12-bit digital-to-analog conversion on a single-wide IP
IP-DIGITAL482	48 channels of TTL-level digital I/O, timers, handshakes; replacement for MC68230-based IPs
IP-DIO48-ET	48 TTL level tri-state digital I/O lines with pullups; interrupts; debounce; ESD
IP-DRV16-ET	16 opto-isolated high side switches with 48V; 1A capacity; short circuit protection
IP-DUALPIT2	32 channels of TTL-level digital I/O, timer I/O, timers, handshakes; replacement for MC68230-based IPs
IP-EXTENDED CAN	Extended CAN-Bus controller on a single-wide IP
IP-MP-SERIAL	Single-wide IP that implements 2 EIA-323/422/485 high-speed synchronous serial ports
IP-MP-SERIAL423	Single-wide IP that implements 2 EIA-423 high-speed synchronous serial ports
IP-NVRAM-2M	Two megabytes of battery-backed SRAM
IP-OCTAL-232	8 EIA-232 asynchronous serial ports, each with RXD, TXD, RTS, CTS & GND signals; 3-level FIFOs; 8 general purpose inputs
IP-OCTAL-422	8 EIA-422 asynchronous serial ports, each with RXD, TXD & GND signals; 3-level FIFOs; 8 general purpose inputs
IP-OCTAL-485	8 EIA-485 asynchronous serial ports, each with DX+, DX- & GND signals; 3-level FIFOs; 4 16-bit timers
IP-OCTALPLUS232	8 channels of asynchronous RS232 115 kbaud serial interface; FIFOs; ESD protection
IP-OCTALPLUS422	8 channels of asynchronous RS422 460 kbaud serial interface; FIFOs; ESD protection
IP-OCTALPLUS485	8 channels of synchronous RS485 2 Mbaud serial interface; FIFOs; ESD protection
IP-OCTALPLUSTTL	8 channels of asynchronous TTL level 460 kbaud serial interface; FIFOs; ESD protection
IP-OCTPL232-ET	8 channels of asynchronous RS232 115 kbaud serial interface; FIFOs; ESD protection; extended temperature range
IP-OCTPL422-ET	8 channels of asynchronous RS422 460 kbaud serial interface; FIFOs; ESD protection; extended temperature range
IP-OCTPLTTL-ET	8 channels of asynchronous TTL 460 kbaud serial interface; FIFOs; ESD protection; extended temperature range
IP-OPTOAD16BPV1	16 opto isolated, multiplexed 16-bit analog-to-digital channels with gain control 80 KHz; -40° to +85°C



Product Description

IP-OPTOAV16-ET	Single wide IP with 16 interrupt generating; optically isolated digital inputs; -40° to +85°C operating; 28V avionics use
IP-OPTODA12CH8	8 opto-isolated 12-bit digital-to-analog conversion channels with gain control 70 KHz; -40° to +85°C
IP-OPTODA16CH4	4 opto-isolated 16-bit digital-to-analog conversion channels with gain control 100 KHz; -40° to +85°C
IP-OPTODAQ12-ET	Opto-isolated 12 bit 16 channel multiplexed analog-to-digital conversion; 8 channel digital-to-analog; 80 KHz; -40° to +85°C
IP-OPTOINPUT16	Single-wide IP with 16 interrupt generating; optically isolated digital inputs; -40° to +85°C operating
IP-OPTOINPUT16C	Single-wide IP with 16 interrupt generating; optically isolated digital inputs; commercial temp
IP-OPTOIO-8	Includes 8 optically isolated inputs; 8 optically isolated outputs
IP-OPTOOUT-16	Single-wide IP with 16 optically isolated digital outputs
IP-PREC-ADC	IndustryPack with precision reference and 12-bit ADC
IP-PWI	Single-wide IP with 3 pulse width input channels
IP-QUADRATURE	Four quadrature encoder input channels
IP-RELAY	Eight latching form C relays
IP-UD	Provides 24 buffered TTL level I/O lines
IP-UD-D	Single-wide IP with 24 differential I/O lines and EIA-422 differential interface
IP-UD-E	Provides 24 TTL level I/O lines, each with ESD protection circuitry
IP-UD-E-48	Provides 48 TTL level I/O lines, each with ESD protection circuitry
IP-UD-I	Single-wide IP with 24 buffered TTL level I/O lines; interrupts
IP-UD-ID	Single-wide IP with 24 differential I/O lines; EIA-422 interface; interrupts
IP-UD-IE	Single-wide IP with 24 TTL level I/O lines with ESD protection circuitry; interrupts
IP-UD-IHV-16I80	Single-wide IP with 16 high-voltage inputs; 8 high-voltage outputs; interrupts
IP-UD-IHV-8I160	Single-wide IP with 8 high-voltage inputs; 16 high-voltage outputs; interrupts
IP-UL-ADC40	40 channels of 12-bit ADC conversion
XM-1553	Passive transition module for SBS IP-1553 IndustryPack
XM-302-1-3U	Transition module supports IP-CM302 products; 3U front panel
XM-302-1-6U	Transition module supports IP-CM302 products; 6U front panel
XM-OCTAL	Transition module for IP-OCTAL; supports 2 OCTAL serial modules
XM-OCTAL-6U-D	Octal serial 6U mounting transition module with 25-pin D connectors
XM-OCTAL-6U-RJ8	Octal serial 6U mounting transition module with RJ45 connectors

## Serial I/O

GE Fanuc Embedded Systems offers a wide range of multi-channel serial interface boards for standard bus and expansion architectures such as CompactPCI®, VMEbus, IndustryPack®, PC-MIP®, and PMC.

	Form Factor	Interface	Asynchronous	Synchronous	# Channels	Front I/O	Rear I/O	Opto-Isolated
COM 2360 DTE/DCE	cPCI 6U	RS232/422/485	●	●	8	●		
EPMCQ2	PMC	RS232/422/485	●	●	6	●	●	
P-SER	PMC	RS232/422/485	●	●	12	●	●	
PMC-3211-24F	PMC	RS232/422	●	●	4	●		
PMC-422	PMC	RS232/422/485	●		8	●	●	
11050-201*	PMC	232/422/V.35	●	●	4	●	●	
PMC421	PMC	RS232/422/485	●		8	●	●	
PMC423	PMC	RS232/422/485	●		16	●	●	
PMC424	PMC	RS232/422/485	●		8	●	●	
PMC682	PMC	RS232/422/485	●		2	●		
PMC682ISO	PMC	RS232/422/485	●		2	●		●
PMCQ1	PMC	RS232/422/485	●	●	4		●	
VME-6015	VME	RS232/422/485	●	●	4	●		

\*RoHS Compliant

### Telum NPA-38x4

Security and quality of service issues have caused network administrators to rely increasingly on deep packet inspection at full Gigabit Ethernet line rates. Telum NPA-38x4 is our high-performance packet processor AdvancedMC designed for these demanding high-speed applications.

With a single Telum NPA-38x4 module, you can create content-aware applications in one MicroTCA™ slot or AdvancedTCA® bay. This allows you to quickly build devices such as Session Border Controllers, Media Gateways, Edge Routers, Firewalls and Video Services Switches, and gain more control of your wired or wireless networks.



## Other I/O

GE Fanuc Embedded Systems offers a variety of highly reliable, high-performance I/O solutions for embedded computing applications.

	Notes
MFIO-C6	6U CompactPCI multi-function I/O card with 8 analog inputs, 7 open collector 250mA outputs, 48 LVTTTL I/O channels, 5 LVDS output ports, 2 LVDS input ports, 2 10/100BaseT interfaces and 6 serial ports; PowerQUICC II processor; 3 axis accelerometer; air-cooled and conduction-cooled formats available
PMC-ECAN-2	PMC with two CAN 2.0 interfaces
PMCD3	Multifunction PMC with Gigabit Ethernet, sync/async serial and IEEE 1394 (Firewire) interfaces; air-cooled and conduction-cooled formats available

## MicroTCA™

MicroTCA™ is a new system architecture in which AdvancedMC™ cards plug into their own backplane. System packaging options range from rack-mounted enclosures all the way down to tiny “pico” enclosures that are not much bigger than a laptop. MicroTCA™ (μTCA) systems are self-contained, with their own power supply and cooling capabilities.

MicroTCA™ inherits a wealth of capabilities from AdvancedTCA®, its parent specification. These include fabric-based interconnects in place of a traditional bus architecture, carrier-grade redundancy options, IPMI-based management and JTAG, Open Source software resources, high-speed data transfer in the 1 GB to 10 GB range, scalability and serviceability (modular, hot swap capabilities).

The μTCA specification allows for a great deal of leeway in how μTCA can be implemented, particularly in regard to levels of redundancy and in the physical packaging of the system itself. As a result of this flexibility, μTCA systems are well suited to many applications outside the telecom environment.

For example, medical imaging equipment such as MRI and CT continues to move out from the hospital setting into clinics and mobile environments. A small yet extremely capable architecture like μTCA can be appropriate for these applications, especially in rural locations and developing countries.

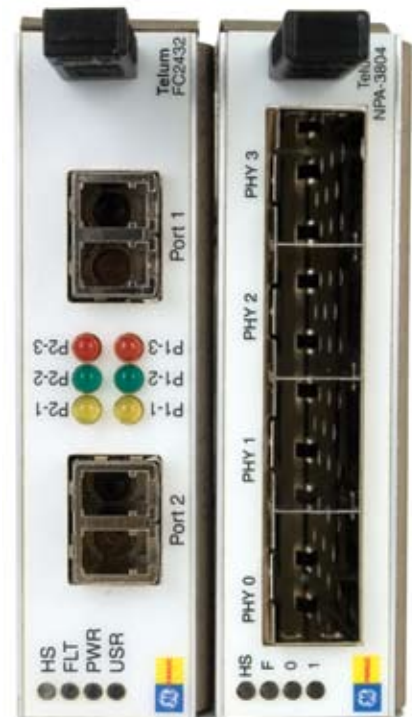
In addition, the communication needs of a network-connected military force may be fulfilled by μTCA, particularly in less rigorous environments such as satellite stations,

WLANs, radar and naval applications like sonar and shipboard communications networks. Many of these applications require high bandwidth and compute density, which μTCA delivers in a compact, affordable and field-serviceable package.

The μTCA architecture can also be appropriate in certain industrial environments. Semiconductor manufacturing, for example, is conducted in a clean, temperature-controlled environment and does not require rugged computing equipment — ideal for μTCA-based solutions.

The μTCA architecture offers all the capabilities required in a telecom network, and is thus capable of handling many IT functions. μTCA-based solutions can be applied to VOIP-based telephony, as well as being appropriate for other parts of the network such as Ethernet routers, storage servers and WLAN applications.

There is little question that μTCA offers features which simply are not available in other embedded architectures. With its significant flexibility in packaging from “pico” systems all the way up to large rack mounted arrays, and its use of mezzanine modules, which are intentionally designed to be low cost items, it is ‘operating system and backplane fabric agnostic — a blank slate on which system designers may draw the new, exciting systems of the future.



## Intelligent I/O Controllers

GE Fanuc Embedded Systems firmware provides all required support for scanning inputs, updating outputs, EU and data-type conversions, fault detection, fault isolation, and error reporting.

	Function	Processor	RAM (Byte)
VME-9081	SBC running built-in software designed to detect, test, and control a variety of I/O board products. Typical application is aircraft trainers.	Intel® Ultra Low Voltage Celeron® 650MHz	128MB
VME-9150	SBC running built-in software that is designed to operate multiple IIOCs in parallel. Typical application is power plant control room simulators.	Intel® Ultra Low Voltage Celeron® 650MHz	128MB

## InfiniBand Switches

InfiniBand® Technology products are ideal for data center applications needing to move large amounts of data at high speeds. EIS-4024-1U-B, the premier member of our InfiniBand family, delivers 10 Gb/s speed and design flexibility.

	Data Ports	Link Configuration	Chassis	Hot Swappable Power Supplies	Hot Swappable Fans	Optical Enabled
EIS-4024-1U-B	24	4x	rackmount	2	●	●
EIS-4008-1U-B	8	4x	rackmount	2	●	●

## InfiniBand HCAs

GE Fanuc Embedded Systems offers the advantages of high-speed InfiniBand® Technology to the world of embedded computing. These Host Channel Adapters (HCAs) are ideal for embedded applications that need high-speed and low latency.

	Form Factor	Ports	Configuration/Description	Silicon	Interface	Optical Enabled
IB4X-CPCI-2A	6U cPCI front panel, cPCI 3U	2	1x or 4x	Mellanox InfiniHost	32/64-bit/66 MHz, 3.3V	●
IB4X-PCI-X-2A	Standard profile PCI-X	2	1x or 4x	Mellanox	32/64-bit/133 MHz, 3.3V	●
IB4X-PCIE8-2A	Standard profile PCIe	2	1x or 4x	Mellanox	8x PCI Express	●

## Fabric Interface

Fabric interfaces extend system performance by exploiting high speed serial links between processors and I/O. StarFabric boards can support multi-board configurations to create AXIS-enabled multi-computer, high performance signal, image and data processing platforms.

	Form Factor	Mezzanine	Rugged Options	Fabric Interfaces	Real Time O/S Support	AXIS Enabled
PMC-StarLite	PMC	None	1-3 rugged air-cooled; 4-5 rugged conduction-cooled	StarFabric	Integrity 5.x, LynxOS 4.x, VxWorks 6.x	●
StarSwitch2	6U VME	2 PMC sites	1-3 rugged air-cooled; 4-5 rugged conduction-cooled	StarFabric	Integrity 5.x, LynxOS 4.x, VxWorks 6.x	●



#### Host Interface Options

#### Other

Reflective Memory, Ethernet, Embedded (IIOC as slave CPU)

Optional Host Software Support Package (VME/SW-IIOC2) provides extensive software library for use with customer's simulation software. Optional Chassis configuration.

Reflective Memory, Ethernet, Embedded (IIOC as slave CPU)

Optional Host Software Support Package (VME/SW-IIOC2) provides extensive software library for use with customer's simulation software.

## Fibre Channel HBAs

Fibre Channel host bus adapters and supporting software tools provide high sustained throughput, low latency, and industry standard multi-node connectivity. All Fibre Channel HBAs are RoHS compliant.

	Bit Rate (Gb/s)	Form Factor	Half Duplex Rate (MB/s)	Full Duplex Rate (MB/s)	Media	Ports
Telum FC2432	4	AMC			Fiber	2
Telum FC2312-FF	2	AMC	200	400	Fiber	2
Telum FC2312-CC*	2	AMC	200	400	Copper	2
FC2312-PMC-CC	2	PMC	200	400	Copper	2
20023-101**	2	PMC	200	400	Fiber	2

\* VxWorks, Red Hat Linux, Windows XP/2000/NT, LynxOS software support

\*\* VxWorks, Red Hat Linux, Windows XP/2000/NT, LynxOS software support; dual flash

## Reflective Memory

Reflective Memory is used to create a high speed, real time, deterministic network where each node has a local copy of shared data. Our products are available with fiber optic options at various baud rates and are designed to support PMC, PCI or VME interfaces.

	Bit Rate (Gb/s)	Form Factor	Memory Capacity	OS Support
PCI-5565PIORC	2	PCI	128 MB	W, L, V, S
PMC-5565PIORC	2	PMC	128 MB	W, L, V, S
VME-5565	2	VME	128 MB	W, L, V, S

Legend: W=Windows NT, L=Linux, V=VXWorks, S=Solaris

### Reflective Memory Hub

The ACC-5595 is a managed Reflective Memory hub designed to operate with our 5565 family of Reflective Memory real-time network products. The ACC-5595 can automatically bypass ports when it detects a loss of signal or the loss of valid synchronization patterns, allowing the other nodes in the network to remain operational. Each Reflective Memory hub provides up to 8 ports using small form factor pluggable (SFP) transceivers, and hub assemblies can be cascaded, up to a maximum of 256 nodes.



## Storage Controllers

GE Fanuc Embedded Systems storage controller products allow you to add SCSI capabilities to a single board computer or a system, and we continue to enhance our cards with features that meet a range of requirements.

	SCSI Interface	Form Factor	I/O Routing	RAID Support	Ruggedization
PMC-5797	Ultra320	PMC	Front Panel	Level 1 (IM)	Commercial
PMC-USCSI320	Ultra320	PMC	Front Panel	No	Commercial
PMC-USCSI320BP	Ultra320	PMC	Backplane	No	Commercial
PMC-USCSI320BP-CC	Ultra320	PMC	Backplane	No	Conduction Cooled Rugged

## On-board Storage

We offer a variety of hard disk adapters and Compact Flash/MicroDrive Host Bus Adapters in the PMC form factor, including innovative solid state options. We also offer an RoHS compliant Serial ATA AdvancedMC™ hard drive module.

	Form Factor	Function	Capacity	Ruggedization
Telum 200-SATA	AMC	Serial ATA Disk Drive Module	Up to 160GB Rotating Up to 64GB Solid State	Commercial
PMC-0247	PMC	Serial ATA Disk Drive Module	Up to 160GB Rotating Up to 64GB Solid State	Commercial
SDD910	3U VPX	Serial ATA Disk Drive Module	Up to 128GB Rotating	Commercial, Extended Temperature
PMC-243	PMC	IDE Disk Drive Module	Up to 120GB Rotating Up to 32GB Solid State	Commercial
PMC-244	PMC	CompactFlash/MicroDrive Host Adapter	Up to 4GB	Commercial
PMC-245	PMC	CompactFlash/MicroDrive Host Adapter	Up to 8GB	Commercial
PMCF3	PMC	CompactFlash/MicroDrive Host Adapter	Up to 6 GB	Commercial, Extended Temperature, Air Cooled Rugged, Conduction Cooled Rugged
RMCD	Rugged External Drive	Rugged memory card drive for use in a variety of military vehicles	II, or III; Slot 2: 1 Type I or II, Slot 1: 1 Type I	Rugged
VME-5740	VME	2 SCSI SCA hard drives	6U VME	Commercial
VME-7469	VME	VMEbus IDE CD ROM or DVD Drive with optional disk drive, SATA drive or CompactFlash	Up to 160 GB Rotating / Up to 20 GB Solid State Up to 4 GB CompactFlash	Commercial

### Telum GPSTC-AMC

Our GPS clock AdvancedMC™ derives a clock signal from the Global Positioning System. This module is particularly useful for telecom network edge applications where there is no access to an accurate clock. It provides a highly stable 30.72 MHz clock output that is phase aligned to the GPS-derived 1 PPS input. This provides extremely precise, highly reliable clock synchronization for applications such as WiMAX base stations.



## Telemetry Systems

GE Fanuc Embedded Systems is a premiere supplier of integrated, ground-based telemetry systems for missile, test range, laboratory, and flight test environments. These system solutions transmit data captured by instrumentation and measuring devices to remote stations where it is recorded and analyzed.

	Software	Features & Benefits
MDC	<ul style="list-style-type: none"> <li>•</li> </ul>	Allows DDR users to monitor and control several DDR channels from one central location. DDR channels can be claimed by an MDC master and can have all DDR functions controlled remotely from that MDC master. The MDC software eliminates the need to man each DDR at every site, allowing one user to control individual DDR channels or groups of channels remotely across a network.
RCI	<ul style="list-style-type: none"> <li>•</li> </ul>	A program designed to receive messages over a network that triggers predetermined sequences of instructions. RCI can assist in a myriad of situations: running demos, performing maintenance on systems from a remote location, or performing repetitive tasks that users were formerly forced to do by hand.

## WAN DS3/E3 Interfaces

Our DS3/E3 products support clear channel, fractional and channelized T3/E3 networking applications. Supported protocols include HDLC, ATM, and TDM. The line includes high-end adapters for line-rate constant small packet transfers, and cost effective adapters for access/edge applications. Drivers and Driver Development Kit are available.

	Interface	Form Factor	Protocol	# Full Duplex Ports	Product Description	Drivers
Telum 1001-DE	DS3/E3	AMC	ATM	1	4MB Local SAR Memory, Local CSU/DSU	D, L
WANic 1001-DE	DS3/E3	cPCI	ATM	1	2/4 MB Local SAR Memory, Programmable interface	D, L, V, *
WANic 1001-DEM	DS3/E3	PCI	ATM	1	ATM DS3/E3 Monitoring Adapter	

Legend: L=Linux, V=VXWorks, D=Driver Development Kit (DDK), \*=planned

## WAN T1/E1/J1 Interfaces

Our T1/E1/J1 products offer multiple application-specific features for cost effective telecom solutions. Supported protocols include HDLC, ATM, and IMA. The product line features line-compliant interfaces, a variety of data processing modes, and local CSU/DSU network line management subsystems. Drivers and Driver Development Kit are available.

	Interface	Form Factor	Protocol	# Full Duplex Ports	Product Description	Drivers
MAXIM 1004-TEJ	T1/E1/J1	PMC	ATM/IMA	4	Support for IMA, Programmable interface	D, L, V, *
Telum 624/628-TEJ	T1/E1/J1	AMC	HDLC	4/8	128/256 DSO Channels, Local CSU/DSU	D, L
WANic 604/608-E1P32	E1	PCI	HDLC	4/8	Local CSU/DSU, Clear channel access, DSX interface	2, D, L, V, W
WANic 604/608-T1P32	T1	PCI	HDLC	4/8	Local CSU/DSU, Clear channel access, DSX interface	2, D, L, V, W

Legend: L=Linux, 2=Windows 2000, W=Windows NT, V=VXWorks, D=Driver Development Kit (DDK), \*=planned

## WAN OC-3/OC-12 Interfaces

GE Fanuc Embedded Systems offers a range of ATM interface product solutions for PCI, cPCI, and AdvancedTCA/AMC/MicroTCA system applications. This product line is complemented by an array of drivers and a comprehensive DDK to facilitate product integration.

	Interface	Form Factor	Protocol	# Full Duplex Ports	Product Description	Drivers
MAXIM 1001-O3M	OC-3	PMC	ATM	1	Multi-Mode Optics, 2/4 MB Local SAR Memory	D, L, V, *
MAXIM 1001-O3S	OC-3	PMC	ATM	1	Single Mode Optics, 2/4 MB Local SAR Memory	D, L, V, *
Telum 1001-O12M1	OC-12	AMC	ATM	1	Multi-Mode Optics, 8 MB Local SAR Memory	D, L
Telum 1001-O12M2	OC-12	AMC	ATM	1	Multi-Mode Optics, 8 MB Local SAR Memory, with Automatic Protection Switching Port (APS)	D, L
Telum 1001-O12S1	OC-12	AMC	ATM	1	Single Mode Optics, 8 MB Local SAR Memory	D, L
Telum 1001-O12S2	OC-12	AMC	ATM	1	Single Mode Optics, 8 MB Local SAR Memory, with Automatic Protection Switching Port (APS)	D, L
Telum 1001-O3M1	OC-3	AMC	ATM	1	Multi-Mode Optics, 4 MB Local SAR Memory	D, L
Telum 1001-O3M2	OC-3	AMC	ATM	1	Multi-Mode Optics, 4 MB Local SAR Memory, with Automatic Protection Switching Port (APS)	D, L
Telum 1001-O3S1	OC-3	AMC	ATM	1	Single Mode Optics, 4 MB Local SAR Memory	D, L
Telum 1001-O3S2	OC-3	AMC	ATM	1	Single Mode Optics, 4 MB Local SAR Memory, with Automatic Protection Switching Port (APS)	D, L
Telum 1004-O3S	OC-3	AMC	ATM	4	Single Mode Optics, 4 MB Local SAR Memory, with Automatic Protection Switching Port (APS)	D, L
Telum 1004-O3M	OC-3	AMC	ATM	4	Multi-Mode Optics, 4 MB Local SAR Memory, with Automatic Protection Switching Port (APS)	D, L
Telum 1204-O3	OC-3/STM1	AMC	ATM	4	Intelligent high-performance multi-service 4-port OC-3 AdvancedMC supporting up to 2 ports of OC-3, or 1 port of GbE and 3 ports of OC-3, or 4 ports of OC-3	L
WANic 1001-O3M	OC-3	PCI	ATM	1	Multi-Mode Optics, 2/4/8 MB Local SAR Memory	D, L, V, *
WANic 1001-O3S	OC-3	PCI	ATM	1	Single Mode Optics, 2/4/8 MB Local SAR Memory	D, L, V, *

Legend: L=Linux, X=Windows XP, V=VXWorks, D=Driver Development Kit (DDK), \*=planned



### WANic 608-SE

This multi-port PCI 2.1 compliant WAN adapter provides support for eight full duplex HDLC interfaces at speeds up to 8 Mbp/s per port. It supports software configurable V.35, EIA-530, X.21 and RS-232 interfaces. Featuring the H32 controller, the WANic 608-SE supports HDLC processing on eight T1/E1 clear channel interfaces. A comprehensive Driver Development Kit is also available, including software drivers, source code and documentation facilitating the development of custom software, drivers or applications.





ICS-8554D	31	<b>M</b>	PCCARD-1553	39	PowerPC DSP Blade	31	
IMP16	17		PCI-40B	46	PowerXpress PPC8A	24	
IMP1A-571 Blade	31	MAC - VME	35	PCI-40B-R	46	PowerXtreme PPC4A	24
IMPCC1	46	MAC - VXI	35	PCI-5565PIORC	61	PowerXtreme PPC7A	24
Intelligence IPC	10	MAGIC1	6	PCI-60A-8/32	46	PowerXtreme PPC7D	24
INTraXtreme IXT2B	22	MAXIM 1001-O3M	64	PCIE-AMC-7S	44	PowerXtreme PPC9A	24
IP-1553-STD	56	MAXIM 1001-O3S	64	PCIE-PCI9-7S	44	PP-600	47
IP-16ADC	56	MAXIM 1004-TEJ	63	PCIE-PCI9-7S-LP	44	PPC8A-572 Blade	31
IP-232-8	34	MDC	63	PEX430	47	PSL09	25
IP-422485-8	34	Memory Blade	31	PIO-2	53		
IP-429HD	35	MFIO-C6	59	PMC-0247	62		
IP-488	56	MPAC-10	10	PMC237	47	<b>Q</b>	
IP-561A	34			PMC-243	62	Q104-1553	39
IP-708	34			PMC-244	62	QCP-1553	39
IP-717	34	<b>N</b>		PMC-245	62	QPCI-1553	39
IP-AD16SS	56	Nd-M17-KB	14	PMC239/F	47	QPM-1553	39
IP-ALTERA-HD50	56	Nd60501	14	PMC421	58	QPMC-1553	39
IP-ALTERA-IP50	56	Nd61400 / Nd61220	14	PMC422	58	QVME-1553	39
IP-ALTERA-TTL	56	NETernity™ CP3-GESW8	50	PMC423	58	QVXI-1553	39
IP-CM302-25-256	56	NETernity™ CP3-GESW8N	50	PMC424	48		
IP-CM302-25-512	56	NETernity™ CP3-GESW12M3	50	PMC494	31	<b>R</b>	
IP-D1553	38	NETernity™ CP3-GESW12M3N	50	PMC571	48	RC	8
IP-DAC	56	NETernity™ CP3-GESW12M3R	50	PMC610	48	RCBC03 F3CD 1G	8
IP-DIGITAL482	56	NETernity™ CP6-GESW24M3	50	PMC610J4	48	RCBC03 F3CD 2G	8
IP-DIO48-ET	56	NETernity™ CP6-GESW24M3N	50	PMC613FX	48	RCC	8
IP-DRV16-ET	56	NETernity™ CP6-GESW24M3R	50	PMC615	48	RCCC03 F6VD 1G	8
IP-DUALPIT2	56	NETernity™ CP921RC	50	PMC618	48	RCFA17 R6xA 1G	8
IP-EXTENDEDSCAN	56	NETernity™ CP940	50	PMC673	48	RCFC07 F6VA 1G	8
IP-MP-SERIAL	56	NETernity™ CP941	50	PMC673TX	48	RCFC08 A6VD 1G	8
IP-MP-SERIAL423	56	NETernity™ CP945FP-12	50	PMC675	48	RCFC12 A6VA 1G	8
IP-NVRAM-2M	56	NETernity™ CP948	50	PMC676	48	RCH	8
IP-OCTAL-232	56	NETernity™ CPX24	50	PMC676TX	48	RCI	63
IP-OCTAL-422	56	NETernity™ GBX16	50	PMC677	48	RCOM05	9
IP-OCTAL-485	56	NETernity™ GBX410	50	PMC677TX	48	RCOM05-ATR-6V	9
IP-OCTALPLUS232	56	NETernity™ PMC941	50	PMC682	58	RCOM06	9
IP-OCTALPLUS422	56	NETernity™ PMC941FX	50	PMC682/E	48	RCOM10	9
IP-OCTALPLUS485	56	NETernity™ PMC942	50	PMC682ISO	48	RDS10	12
IP-OCTALPLUSTTL	56	NETernity™ PMCE4R	50	PMC695	48	RDS5	12
IP-OCTPL232-ET	56	NETernity™ RM921	50	PMC695TX	48	RES-110	7
IP-OCTPL422-ET	56	NETernity™ RM922RC	50	PMC696	48	RM610	48
IP-OCTPLTTL-ET	56	NETernity™ RM940	50	PMC696TX	25	RM666FX	48
IP-OPTOAD16BPV1	56	NETernity™ RM941	50	PMC721TX	39	RM675	48
IP-OPTOAV16-ET	57	NETernity™ RM942	50	PMC1553E	58	RM675TX	48
IP-OPTODA12CH8	57	NETernity™ RM943/.10	50	PMC-3211-24F	61	RM676	48
IP-OPTODA16CH4	57	NETernity™ RM945FP-12	51	PMC-5565PIORC	62	RM676TX	48
IP-OPTODAQ12-ET	57	NETernity™ RM947IND	51	PMC-5797	52	RM677	48
IP-OPTOINPUT16	57	NETernity™ RM948	51	PMC-AD16-ETB	42	RM677TX	48
IP-OPTOINPUT16C	57	NEXUS Forte	29	PMC-AUDIO-BP	42	RMCD	62
IP-OPTOIO-8	57	NEXUS Quattro	29	PMC-AUDIO-CC	59	ROC	6
IP-OPTOOUT-16	57			PMC-AUDIO-FP	52	RT4-001CPCI	9
IP-PREC-ADC	57	<b>O</b>		PMCD3	53		
IP-PWI	57	Octegra3	42	PMC-DA16-ETB	53	<b>S</b>	
IP-QUADRATURE	57	Open Frame Computers	10	PMC-DIO-ETB	59	SC	12
IP-RELAY	57	Open Frame Monitors	14	PMC-DIO-ETF	62	SCC	12
IP-UD	57	OS-PR107	44	PMC-ECAN-2	42	SCC484TXXX	12
IP-UD-D	57			PMCF3	48	SCC784TXXX	12
IP-UD-E	57			PMCGA3	39	SCM	12
IP-UD-E-48	57			PMCGA4	53	SDD910	62
IP-UD-I	57			PMC-GBIT-DT2BP	58	SE0	22
IP-UD-ID	57			PMC-GBIT-DT2CC	60	SE1	42
IP-UD-IE	57			PMC-MMSI	53	SealTouch-15	10
IP-UD-IHV-16180	57	<b>P</b>		PMCPIO1	62	Sentinel-10	14
IP-UD-IHV-81160	57	P0CC1	46	PMCQ1	62	Sentinel Series	14
IP-UL-ADC40	57	P-10SF	39	PMC-StarLite	62	Sentiris S4110	42
ISA-1553	39	P-708	34	PMC-TTL64-ET	42	Standard 19" Cages	12
		P-SER	58	PMC-USCSI320	42	StarSwitch2	60
		PA-100	35	PMC-USCSI320BP	20		
		PAC-MMS	10	PMC-USCSI320BP-CC	20		
		PAC-Xscale	13	PMC-VIDEOPLUS	20		
		PAC-Xscale-12	13	PowerPact3 IMP1A	20		
		PAC-Xscale-12-HZ	10	PowerPact3 IMP2A	20		
		PAC-Xscale-HZ	10	PowerPact3 IMPCC2	20		
		Panel C	10	PowerPact6 CP1A	20		
		PASS 3200	37				
		PC7	24				
		PCC-D1553	39				
<b>L</b>							
LV-1553	39						

**T**

Talon 8400	24
Telum 200-SATA	62
Telum 624/628-TEJ	63
Telum 1001-DE	63
Telum 1001-O3M1	64
Telum 1001-O3M2	64
Telum 1001-O3S1	64
Telum 1001-O3S2	64
Telum 1001-O12M1	64
Telum 1001-O12M2	64
Telum 1001-O12S1	64
Telum 1001-O12S2	64
Telum 1004-O3M	64
Telum 1004-O3S	64
Telum 1204-O3	64
Telum 2001-VGA	42
Telum ASLP10	22
Telum FC2312-CC	61
Telum FC2312-FF	61
Telum FC2432	61
Telum GE-QT	48
Telum GPSTC-AMC	62
Telum NPA-38x4	58
ThinView-WN-RM	14
TI C64 DSP Blade	31
TM-683	47
TPMCC	47
TRCP940	51
TRCP9XXRC	51
TRCP9XXRC-5	51
TRCP9XXRC-12	51
TRRM922RC	51
TRRM940	51
TS-MPEG-4 Bundle	42
TS-RS-170 Video Capture PMC	42

**V**

V2S	24
V4DSP	29
V5D	22
V7809RC	22
V7865	22
VAMP-LMV10	14
VAMP-SlimVista	14
VAMP-WN Series	14
VDB30	17
VD-FOE	48
VG5	24
VIM2	42
VIPC326-ET6U	47
VIPC327-ET6U	47
VIPC626-ET	47
VIPC627-ET	47
VIPC628-ET	47
VIPC664-ET	47
VIPC8243	47
VIPC8244	47
VME-1111	53
VME-1128	53
VME-1129	53
VME-1150	53
VME-1160A	53
VME-1182	53
VME-1184	53
VME-1553	39
VME-2120	53
VME-2128	53
VME-2131	53
VME-2170A	53
VME-2210	53
VME-2232	53
VME-2510B	53

VME-2528	53
VME-2532A	53
VME-2533	53
VME-2534	53
VME-2536	53
VME-2540	53
VME-3113A	52
VME-3122	52
VME-3123	52
VME-3128	52
VME-4116	52
VME-4120	52
VME-4132	52
VME-4140	52
VME-4145	52
VME-4514A	52
VME-5504L	44
VME-5531L	44
VME-5532L	44
VME-5565	61
VME-5740	62
VME-6015	58
VME-7050	24
VME-7469	62
VME-7700RC	22
VME-7805	22
VME-7807	22
VME-7810	22
VME-7851	22
VME-9081	60
VME-9150	60
VP9	22
VPXcel3 SBC340	23
VPXtreme3 SBC330	24
VPXtreme6 SBC610	24
VQG4 PowerPC VME	29
VR9	22

**W**

WANic 604/608-E1P32	63
WANic 604/608-T1P32	63
WANic 608-SE	64
WANic 1001-DE	63
WANic 1001-DEM	63
WANic 1001-O3M	64
WANic 1001-O3S	64
Wolverine	10

**X**

XD-FOE	48
Xilinx FPGA Blade	31
XM-302-1-3U	57
XM-302-1-6U	57
XM-664-60	47
XM-664-80	47
XM-1553	57
XM-OCTAL	57
XM-OCTAL-6U-D	57
XM-OCTAL-6U-RJ8	57
XtraPower PPCM1	24
XtraPower PPCM2	24

## GE Fanuc Automation & CNC

In addition to the products featured in this catalog, GE Fanuc offers a separate and equally stellar set of industrial automation solutions. For over two decades, GE Fanuc Automation has focused on incorporating high-end computing power into the manufacturing operations of our customers. The computing power we deliver helps our customers to become more successful on the factory floor and in the boardroom.

We provide hardware and software tools which are used in applications ranging from aerospace manufacturing to wastewater treatment. We design, manufacture, implement and support these products, which range from high speed, highly secure industrial network elements to the latest CNC technologies.

Our product selection includes highly evolved software suites for HMI/SCADA, process control, production management and asset management. In addition, we provide the associated controller hardware, I/O, motion control solutions and operator interfaces with their bundled software and programming tools.

Customers facing manufacturing challenges will find us to be a highly responsive solution provider with a complete offering of hardware, software and services which can provide a distinct competitive advantage. GE Fanuc combines industry leading product breadth with award winning service to provide our customers with the most comprehensive solution set available. For more information visit [www.gefanuc.com](http://www.gefanuc.com)



## GE Fanuc Embedded Systems

**Headquarters**  
2500 Austin Drive  
Charlottesville, VA 22911 USA  
Phone: 1 800 GE FANUC  
Email: [info@gefanucembedded.com](mailto:info@gefanucembedded.com)

GE Fanuc Embedded Systems has sales offices throughout the world. To find sales and support in your area, visit our web site at [www.gefanucembedded.com](http://www.gefanucembedded.com)

