



Embedded Computing *Selector Guide—April 2011*

Product/Feature		Centellis™ 2000, R1.0/R2.0	Centellis 4410, R1.0	Centellis 4440, R1.0	Centellis 4620, R1.0
Shelf Details	Slot Count	2	14	14	16
	Shelf Size	19"	19"	19"	23" (600 mm)
	Height	3U	13U	13U	13U
Backplane	Hub Slot Location	N/A	Slots 6, 9	Slots 6, 9	Slots 1, 16
	Fabric Bandwidth	1G/10G	1/10G	1G/10G/40G	1G/10G
	IPMI Signals	Bussed	Bussed	Radial	Radial
	Switch Blade	N/A	ATCA-F120	ATCA-F120	ATCA-F120
Shelf Management	Number of Shelf Managers	2	2	2	2
	Architecture	M100	M100	ShMM1500R	ShMM1500R
	HPI Location	M100	M100	ATCA-F120	ATCA-F120
Power Distribution	Number of PEMs	2	2	2	2
	Amps/Feed, Feeds/PEM	18A, single feed	80A, dual feed	80A, dual feed	80A, dual feed
	Max Power (Front + RTM)	350W	350W	350W	350W
Cooling Capacity	CP-TA Compliance	B.4	B.4	B.4	B.4
	Air Flow (Front/RTM)	40/5 CFM	40/5 CFM	40/5 CFM	40/5 CFM
Designed for NEBS/ETSI		Yes	Yes	Yes	Yes
Operating System		N/A	Wind River PNE-LE 2.0	Wind River PNE-LE 2.0	Wind River PNE-LE 1.4
Basic Blade Services		N/A	Yes	Yes	Yes
Availability		GA	GA	GA	GA

GA = General Availability



Product/Feature		ATCA-F140	ATCA-F125	ATCA-F120
Networking	Base Interface	1G	1G	1G
	Fabric Interface	1G / 10G / 40G	1G / 10G	1G / 10G
	Slots support	Up to 16	Up to 16	Up to 16
Processor Complex	Processor	Freescale P2020	Freescale P2020	Freescale MPC8548E
	Main Memory (ECC)	2.0GB	2.0 B	512MB
	Boot Flash	64MB	64MB	1.0MB
	User Flash	2.0GB	2.0GB	31MB
Options	Additional Processing	PrAMC-7211	PrAMC-7211	PrAMC-7211
	Local Storage	HDD-80G-SATA	HDD-80G-SATA	AMC-S321
	Telecom Clocking	Build Option	Build Option	AMC-8001
External Interfaces (Front Panel)	Management Ethernet	1G (RJ-45)	1G (RJ-45)	10/100 (RJ-45)
	Console	Serial (RJ-45)	Serial (RJ-45)	Serial (mini DB-9)
	USB	Yes	Yes	N/A
	Base Interface	Qty=2, 10G (SFPP)	Qty=2, 10G (SFPP)	N/A
	Fabric Interface	Qty=2, 10G (SFPP) Qty=2, 40G (QSFP)	Qty=2, 10G (SFPP)	N/A
External Interfaces (RTM)	Base Interface	Qty=2, 10G (SFPP)	Qty=2, 10G (SFPP) Qty=4, 1G (SFP)	Qty=2, 10G Qty=4, 1G
	Fabric Interface	Qty=4, 10G (SFPP) Qty=1, 40G (QSFP)	Qty=6, 10G (SFPP)	Qty=4, 10G Qty=4, 1G
Software	OS	WR PNE 3.0	WR PNE 3.0	WR PNE 2.0
	BBS Software	Yes	Yes	Yes
	Switch Software	SRstackware 2.1	SRstackware 2.1	SRstackware 2.1
Availability		June 2011	Now	Now

EA = Early Access GA = General Availability



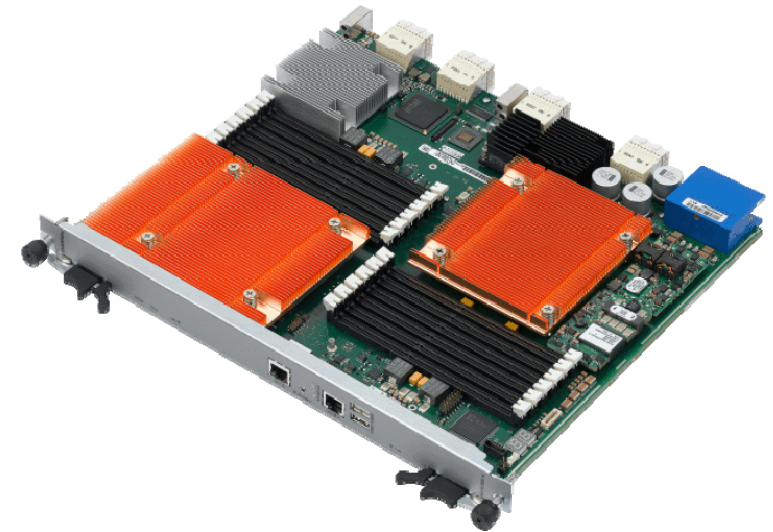
Commercial AdvancedTCA® Platform

Product/Feature		Katana® 2000
Shelf Details	Slot Count	2
	Shelf Size	19"
	Shelf Height	3U
Backplane	Hub Slot Location	N/A
	Fabric Bandwidth	1G
	IPMI Signals	Bussed
Shelf Management	Number of Shelf Managers	1 or 2
	Base Architecture/HPI Location	M100
Power Distribution	Number of PEMs or PSUs	1 or 2
	Amps/Feed, Feeds/PEM	18A, single feed
	Max Slot Power (Front+RTM)	350Watt
Cooling Capacity	CP-TA Compliance	B.4
	Air Flow (Front/RTM)	40/5 CFM
Blade Details (One or two server blades, depending on configuration)	Processor	Dual quad-core Intel® Xeon® E5520
	Number of Cores	8
	Memory Options	12, 24GB (up to 48GB capable)
	Fabric Type / Speed / Configuration	Option 1 / 2x 1G / Dual star
	Storage	2x hot-swappable SAS or SATA HDDs via RTM
	Optional Interfaces	RTM for 1x USB, 1x monitor, 2x Gigabit Ethernet, 2x Fiber Channel (optional)
NEBS		No (max. 35°C ambient)
Operating System		RHEL 5.3 certified
Availability		GA



Commercial AdvancedTCA[®] Processor Blade

Product/Feature	ATCA-7365-CE
Processor	Dual 2.4 GHz 4- or 6-core Intel [®] Xeon [®] E5620 or E5645
Number of Cores	12
Memory Options	Up to 96GB
Fabric Type	Option 1, 9
Fabric Speed	2x 1G, 2x 10G
Fabric Configuration	Dual star
Storage	Optional SAS/SATA hot-swappable HDD via RTM; Optional 32GB/64GB on-board solid state disk at SATA; or Persistent memory module (16MB SRAM, 64MB flash)
Optional Interfaces	1x GbE, 2x USB, 1x serial console RTM options: up to 6x GbE, 2x 4Gbps FC, 2x SAS, 1x USB
Operating Systems	Red Hat RHEL 5.5 certified Wind River PNE 3.0
Other	4GB on-board USB flash VGA module for selected variants or on request. Non full-NEBS (max. 35 °C ambient)
Availability	GA



AdvancedTCA[®] Processor Blades

Product/Feature	ATCA-7368	ATCA-7367	ATCA-7365
Processor	2.0 GHz 6-core Intel® Xeon® L5638	2.0 GHz 6-core Intel® Xeon® L5638	Dual 2.0 GHz 6-core Intel® Xeon® L5638
Number of Cores	6	6	12
Memory Options	Up to 48GB	Up to 48GB	Up to 96GB
Fabric Type	Option 1, 9	Option 1, 9	Option 1, 9
Fabric Speed	2x 1G, 2x 10G	2x 1G, 2x 10G	2x 1G, 2x 10G
Fabric Configuration	Dual star	Dual star	Dual star
Storage	Optional SAS/SATA hot-swappable HDD via RTM; Optional 32GB/64GB on-board solid state disk at SATA; or Persistent memory module (16MB SRAM, 64MB flash)	Optional SAS/SATA hot-swappable HDD via RTM; Optional 32GB/64GB on-board solid state disk at SATA; or Persistent memory module (16MB SRAM, 64MB flash)	Optional SAS/SATA hot-swappable HDD via RTM; Optional 32GB/64GB on-board solid state disk at SATA; or Persistent memory module (16MB SRAM, 64MB flash)
Optional Interfaces	2x GbE, 2x USB, 1x serial console RTM options: 2x GbE with SFP, 4x SAS (three from controller, one from HDD), 1x USB	1x GbE, 2x USB, 1x serial console RTM options: up to 6x GbE, 2x 4Gbps FC, 2x SAS, 1x USB	1x GbE, 2x USB, 1x serial console RTM options: up to 6x GbE, 2x 4Gbps FC, 2x SAS, 1x USB
Operating Systems	Red Hat RHEL 5.5 certified Wind River PNE 4.0	Red Hat RHEL 5.5 certified Wind River PNE 3.0	Red Hat RHEL 5.5 certified Wind River PNE 3.0
Other	(1) AMC site* (PICMG AMC.0, AMC.1, AMC.3 compliant); Optional 4GB on-board USB flash	(1) AMC site* (PICMG AMC.0, AMC.1, AMC.2, AMC.3 compliant) Telecom Clocking 4GB on-board USB flash	4GB on-board USB flash VGA module for selected variants or on request
Availability	EA	GA	GA

*Variant available without AMC site but with on-board Automotive SATA drive.

EA = Early Access GA = General Availability



AdvancedTCA[®] Processor Blades

Product/Feature	ATCA-7360	ATCA-7350	ATCA-7301	ATCA-7150
Processor	Dual 2.13 GHz quad-core Intel [®] Xeon [®] L5518	Dual 2.13 GHz quad-core Intel [®] Xeon [®] LV	2.16 GHz Intel [®] Core [™] 2 Duo	Dual 2.13 GHz dual-core Intel [®] Xeon [®] LV
Number of Cores	8	8	2	4
Memory Options	Up to 80GB	Up to 32GB	up to 16GB	up to 16GB
Fabric Type	Option 1, 9	Option 1, 9	Option 1, 9	Option 1
Fabric Speed	2x 1G, 2x 10G	2x 1G, 2x 10G	2x 1G, 1x 10G	2x 1G
Fabric Configuration	Dual star	Dual star	Dual star	Dual star
Storage	Optional SAS/SATA hot-swappable HDD via RTM; Optional 32GB/64GB on-board solid state disk at SATA; or Persistent memory module (16MB SRAM, 64MB flash)	2 optional 2.5" SAS or SATA on drive bays	Optional SAS via RTM	2x optional 2.5" SAS or SATA on drive bays
Optional Interfaces	1x GbE, 2x USB, 1x serial console RTM options: up to 6x GbE, 2x 4Gbps FC, 2x SAS, 1x USB	2x SAS, 2x USB, Serial RTM for 2x 1GbE or 2x FC, USB, monitor	RTM for USB, I/O, GbE, SAS, clock	2x USB, Serial, RTM for up to 6x 1GbE, 2x FC, USB, monitor
Operating Systems	Red Hat RHEL 5.5 and Wind River PNE 3.0	Red Hat RHEL 5.3 and Wind River PNE 2.0	Wind River PNE 2.0 and Red Hat RHEL 5.0	Red Hat RHEL 5.0, MontaVista CGE 5.0 and Wind River PNE 2.0
Other	4GB on-board USB flash Optional VGA module (on request)	1GB user flash memory	(2) AMC sites	—
Availability	GA	GA	GA	GA

GA = General Availability



AdvancedTCA[®] Processor Blades

Product/Feature	ATCA-8310 Media Gateway with DSPs, Packet Processor and General Purpose Intel Processor		
Processor	Up to 30 Texas Instruments TMS320TCI6486	Freescale QorIQ P4080	Intel Core i7-620LE
Number of Cores	Up to 180	8	2
Usage	Media Processing Media Transcoding	2 cores as management processor 6 cores as packet processing, packet forwarding, load balancing service processor	General purpose processing (e.g., call server)
Memory	Up to 128MB per DSP	Up to 2x GB DDR3 DIMMS	Up to 2x 4GB DDR3 DIMMs
Fabric Type	Option 1, 9		
Fabric Speed	1G, 10G		
Fabric Configuration	Dual star		
Storage	—	Up to 16GB flash memory	Optional SATA SSD
Interfaces	Front panel COM, USB, Ethernet and VGA interfaces		
Software	Control, boot and operation control of the DSPs as part of the Basic Blade Management Services	Freescale Hypervisor, Linux, Light Weight Executives. Basic Blade management with FW upgrade tools. SRstackware L2 switching & L3 routing support. Packet forwarder / load balancer	Red Hat Enterprise Linux certified
Input/Output	IP RTM with 1x 10GbE via SFPP interface; 4x 10/100/1000BaseTX via RJ-45. TDM RTMs with OC-3, OC-12, DS1 or DS3 on request		
Availability	EA—July 2011 GA—September 2011		

EA = Early Access GA = General Availability



AdvancedTCA[®] Processor Blades

Product/Feature	ATCA-9305	ATCA-9305-NSP	ATCA-9305-SCP
Processor	Two Cavium OCTEON 5860-NSP	Two Cavium OCTEON 5860-NSP	Two Cavium OCTEON 5860-SCP
Number of Cores	2x 16 MIPS64 cores running up to 800 MHz	2x 16 MIPS64 cores running at 800 MHz	2x 16 MIPS64 cores running at 800 MHz
Memory Options	up to 16GB DDR2 SDRAM 512MB RLDRAM	up to 32GB DDR2 SDRAM 512MB RLDRAM	up to 32GB DDR2 SDRAM
Fabric Type	Option 1, 9	Option 1, 9	Option 1, 9
Fabric Speed	1G, 10G	1G, 10G	1G, 10G
Fabric Configuration	Dual star	Dual star	Dual star
Storage	1GB user flash	4GB available via optional flash RTM	4GB available via optional flash RTM
Optional Interfaces	RTM: 2x 10G SFP+12x 1G SFP or 18x 1G SFP	RTM: 2x 10G SFP+12x 1G SFP or 18x 1G SFP or 6x 10G SFP+ plus 4GB flash	RTM: 2x 10G SFP+12x 1G SFP or 18x 1G SFP or 6x 10G SFP+ plus 4GB flash
Software	Basic Blade Services for Wind River PNE-LE 2.0 SRstackware L2 switching protocols	Extended Blade Services for Wind River; PNE-LE 2.0 including SRstackware switching and routing protocols	Extended Blade Services for Wind River PNE-LE 2.0 including SRstackware switching and routing protocols
Other	Basic Blade Services software optional	Extended Blade Services software included	Extended Blade Services software included
Availability	Pending EOL (not recommended for new designs)	GA	GA

GA = General Availability



AdvancedTCA[®] Storage Blades

Product/Feature	ATCA-S120	ATCA-S201
Storage Architecture	Direct Attached Storage (DAS)	Shared storage
External Connectivity	External SAS cabling (4x)	1G/10G ATCA fabric interface
External Storage Protocols	SAS (4)	iSCSI over Ethernet
Storage Form Factor	AMC (4)	AMC (4)
Storage Capacity	300GB, SAS, 10K HDD	300GB, SAS, 10K HDD
Total Storage Capacity	Up to 1.8TB	Up to 1.8TB
RAID	NA	RAID 0, 1, 1E
RTM	SFF HDDs	SFF HDDs
Availability	GA	GA

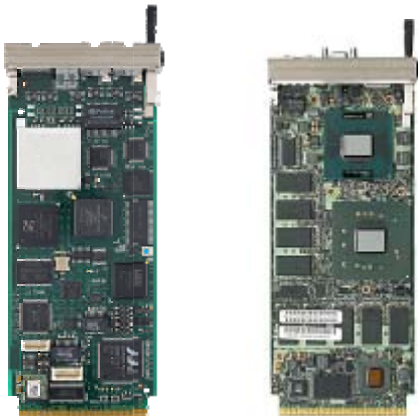
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AdvancedMC™ Processor Modules

Product/Feature	AMC-8001	PrAMC-7211
Processor Type	Service processor—PowerQUICC I Telecom CLK processor—Semtech ToPSync	Intel® Core™2 Duo @ 1.5 GHz
Memory	N/A	2/4GB ECC DDR2
Front I/O	Telecom CLK synchronization Telecom CLK input (BITS/SSU)	RS-232 mini DB-9, USB 2.0, 10/100BT, RJ-45
Supported Interfaces	IEEE 1588, V2 Telcordia G.812, G.825	X4/8 PCI Express AMC.1 Type 8; SATA AMC.3; 1000BASE-BX AMC.0 Type E2
OS/Software	Wind River VxWorks	MontaVista CGE 4.0, Wind River PNE-LE 1.4, 2.0 Red Hat RHEL 5.0
Size	Single wide, mid-size	7211-Single wide, mid-size
Availability	GA	GA

GA = General Availability



AdvancedMC™ Storage Modules

Product/Feature	AMC-S303	AMC-S321	AMC-S402	AMC-S502
Storage Capacity	320GB	80GB	300GB	32GB
Serial Storage Protocol	SATA	SATA	SAS	SATA
Drive Type	2.5" Extended Duty	2.5" Extended Duty	2.5" Enterprise	2.5" Solid State Flash based (no moving parts)
Supported Interfaces	AMC.3 Port 2 or Port 3	AMC.3 Port 2 or Port 3	AMC.3 Port 2 (Primary) and Port 3 (Secondary)	AMC.3 Port 2 or Port 3
Size	Single wide, mid-size	Single wide, mid-size	Single wide, mid-size	Single wide, full-size
Availability	GA	GA	GA	Per customer demand

GA = General Availability



Product/Feature		MATXM-C2-410-B	MATXM-CORE-411-B
Form Factor		MicroATX with midplane for alternate power, SATA and chassis cabling	MicroATX with midplane for alternate power, SATA and chassis cabling
CPU Support		Intel® Core™ 2 Duo T9400/P8400, Intel® Celeron® 575	rPGA989 socket (Socket G) for Intel® Core™ i7 & i5 processor variants
CPU Frequency		up to 2.53 GHz	up to 2.6 GHz
Chipset		Intel® GM45 + ICH9M-E	Mobile Intel® QM57
Max. System Memory		up to 8GB DDR3	up to 8GB DDR3
BIOS		AMI EFI-based	AMI EFI-based
OS Support		Microsoft® Windows® XP, Windows® Vista®, SuSE SLES 11	Windows XP, Windows Vista, SuSE SLES 11, Wind River VxWorks
Watchdog Timer		1 sec – 255 sec or 1 min – 255 min	1 sec – 255 sec or 1 min – 255 min
Audio		High definition audio	High definition audio
I/O Ports	SATA/eSATA	4	4
	SSD	Up to 16GB eUSB flash	Up to 16GB eUSB flash
	Serial Port	2	2
	PoweredUSB	(2) 12V ports; (1) 24V port	(2) 12V ports; (1) 24V port
	USB 2.0	7	9
	LAN	10/100/1000 Mbps	10/100/1000 Mbps
	PCI Express	3 x 1 slots	1 x 16 PCI Express, 3 x 1 PCI Express
	PCI Express Mini Card	1	1
Primary Display		LVDS or VGA	LVDS or VGA
Secondary Display		HDMI	HDMI
Power Supply		ATX Note: 24V PoweredUSB requires additional 24V lines	ATX Note: 24V PoweredUSB requires additional 24V lines
Certificate		FCC, CE, VCCI	FCC, CE, VCCI
Availability		GA	GA

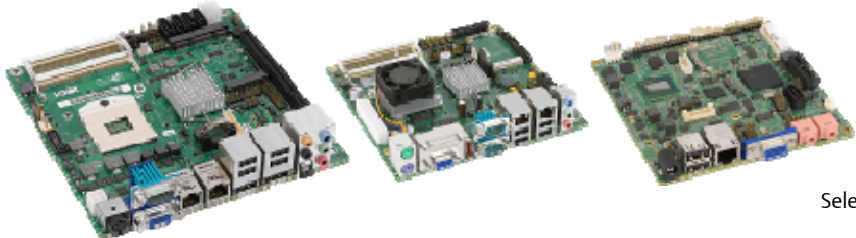


GA = General Availability

SFF Embedded Motherboards

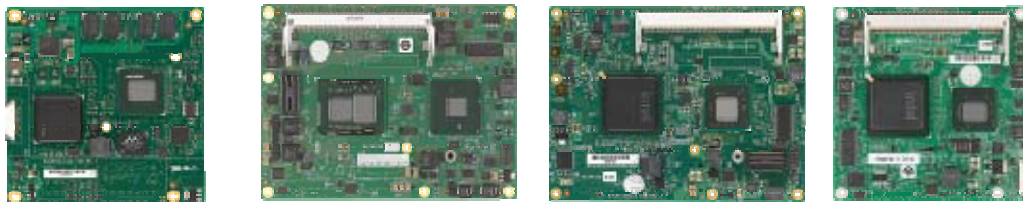
Product/Feature		MITX-CORE-820	MITX-430/440	NITX-315
Form Factor		Mini-ITX	Mini-ITX	Nano-ITX
CPU		PGA socket for 2nd gen Intel® Core™ processors	Intel® Atom™ D410 or D510 Processors	Intel® Atom™ E620 or E640 Processors
CPU Frequency		Up to 2.2 GHz	Single-core or dual-core up to 1.66 GHz	600 MHz or 1.0 GHz
Chipset		Intel® QM67	Intel® 82801HBM	Intel® Platform Controller Hub EG20T
Max. System Memory		Up to 8GB DDR3 in two SO-DIMM sockets	up to 4GB DDR2	512MB or 1GB DDR2 soldered memory
BIOS		AMI, UEFI	AMI, UEFI	AMI, UEFI
OS Support		Microsoft® Windows® XP, Windows Embedded Standard, Fedora Core 11	Microsoft® Windows® XP, WEPOS, Fedora Core 11	Microsoft Windows XP, Windows 7, Windows Embedded Standard, Meego Linux
Watchdog Timer		—	1~255s, 1~255m	—
Audio		7.1 HD Audio, 5 audio jacks and Toslink optical connector	High Def Audio ALC888	Line in, Line out
I/O Ports	SATA/eSATA	2 SATA 6G, 2 SATA 3G	2 SATA, eSATA	SATA
	Storage	eUSB flash ready	eUSB flash ready	Slimline SSD site, MicroSD memory card
	Serial Port	1 on panel	2 on panel + 4 headers	4 headers
	USB 2.0	4 on panel, 4 on headers	8	2 ports, 6 headers + USB client header
	LAN	2x Gigabit Ethernet	1 or 2 Gigabit Ethernet	Gigabit Ethernet
	PCI Express	1 x 16	1	1
	PCI Express Mini Card	1 full; 1 half size	1	1
Primary Display		2x DisplayPort	VGA	VGA
Secondary Display		VGA, LVDS	LVDS/DVI	LVDS
Power Supply		4-pin AT/ATX + 12V barrel input	AT/ATX	12V Barrel Input
Power Consumption		Power consumption dependent on processor and memory installed	29W Typical (dual-core processor, 4GB DRAM, 12.1" LCD panel)	<14 Watts
Certificate		Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick, Designed to comply with IEC 60601	Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick	Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick
Availability		GA	GA	August 2011

GA = General Availability



Product/Feature		COMX-315 Series	COMX-CORE Series	COMX-420	COMX-430/440
Form Factor		Type 2* (95 x 95 mm)	Type 6 (125 x 95 mm)	Type 2 (125 x 95 mm)	Type 2 (95 x 95 mm)
CPU		Intel® Atom™ E640 Processor	Intel® Core™ i3, i5 and i7 and Celeron Processors	Intel® Atom™ N450 Processors	Intel® Atom™ D410 or D510 Processor
CPU Frequency		Single-core 1.0 GHz	1.06— 2.4 GHz	1.66 GHz	Single-core or dual-core at 1.66 GHz
Chipset		Intel® Controller Hub EG20T	Mobile Intel® QM57	Intel® 82801HBM	Intel® 82801HBM
Max. System Memory		1GB DDR2 soldered memory	up to 8GB DDR3	up to 2GB DDR2	up to 4GB DDR2
BIOS		AMI, UEFI	AMI, UEFI and SPI for external BIOS	AMI, UEFI and SPI for external BIOS	AMI, UEFI and SPI for external BIOS
OS Support		Microsoft® Windows®, Windows® XP, Windows® 7	Microsoft Windows XP, Windows® Vista®, WEPOS, Fedora Core 11	Microsoft Windows XP, Windows Vista, Red Hat Linux 5.3	Microsoft Windows XP, Windows Vista, Fedora 12 Linux
Audio		High Def Audio	High Def Audio	High Def Audio	Hi Def Audio
I/O Ports	SATA/eSATA	1	4	3	3
	USB 2.0	8	8	8	8
	LAN	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
	PCI Express	1 x 1	1 x 16, 7 x 1	5 x 1	5 x 1
	PCI	*no PCI support	NA	1	1
	IDE	*no IDE support	NA	1	1
Primary Display		VGA, LVDS	LVDS, 3 x DVI/HDMI	LVDS	LVDS
Accessories		Heat spreading plate: COMX-315-HP	Heatspreader: COMX-CORE-HP Heatsink: COMX-CORE-HTSNK	Heatspreader: COMX-420-HSP Heatsink: COMX-420-HTSNK	Heatspreader: COMX-440-HP Heatsink: COMX-440-HTSNK
Certificate		Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick	Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick	Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick	Class B FCC, VCCI, AS/NZ, UL/CSA, Ctick
Availability		August 2011	GA	GA	GA

GA = General Availability



COM Express® Modules—QorIQ™

Product/Feature	COMX-P4080	COMX-P2020	COMX-P1022
Form Factor	COM Express Basic (125 x 95 mm)	COM Express Compact (95 x 95 mm)	COM Express Compact (95 x 95 mm)
Processor	Freescale QorIQ P4080	Freescale QorIQ P2020	Freescale QorIQ P1022
Cores, Frequency	8 cores, 1.5 GHz	2 cores, 1.2 GHz	2 cores, 1.0 GHz
Memory	Up to 4GB DDR3 ECC SO-UDIMM	Up to 2GB DDR3 ECC SO-UDIMM	Up to 2GB DDR3 ECC SO-UDIMM
SDIO	MicroSD slot included on module	MicroSD slot included on module	MicroSD slot included on module
Ethernet	1x 1GbE with integrated PHY Up to 1x 10GbE XAUI and up to 4 x SGMII ports available via SERDES links	3x 1GbE with integrated PHY	2x 1GbE with integrated PHY
USB 2.0	4 with integrated PHY	4 with integrated PHY	4 with integrated PHY
UART	2 with flow control	2 with flow control	2 with flow control
SPI	1 with 4 chip selects	1 with 4 chip selects	1 with 4 chip selects
GPIO	8	8	8
I2C	4	2	4
PCI Express/RapidIO	Up to 2 x4 SRIOv2 ports and up to 2 x4 PCI Express 2 ports available via SERDES links	x2 PCI Express + x1 PCI Express	x2 PCI Express + dual x1 PCI Express
Graphics	-	VGA/LVDS	VGA/LVDS
SATA 2.0	-	-	2
IEEE 1588	Yes	Yes	Yes
Power of Module	30W typical	12W typical	10W typical
Availability	GA	GA	GA

GA = General Availability



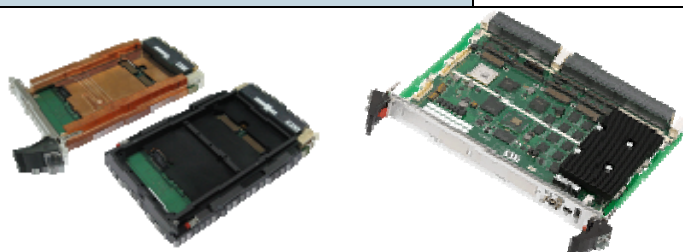
Product/Feature	COMX-CAR-610	COMX-CAR-210	COMX-CAR-P1
Form Factor	MicroATX Type 6 COM Express carrier	MicroATX Type 2 COM Express carrier	MicroATX QorIQ module carrier
CPU Modules	COMX-CORE-310, 312, 510, 512, 710, 750	COMX-420, 430, 440	COMX-P2020, P4080, P1022
BIOS	SPI flash, EFI firmware	SPI flash, EFI firmware	Uboot
OS Support	Microsoft® Windows® XP, Fedora 12, Red Hat Enterprise Edition 5.x	Microsoft Windows XP, Windows® 7, Windows® Embedded 2011, Fedora 12	Emerson Linux
Back Panel I/O	<ul style="list-style-type: none"> • VGA, 2x display port, HDMI • Line-in/out, microphone • 2x GbE RJ-45 • 4x high speed USB 2.0 (using 3.0-ready connectors) 	<ul style="list-style-type: none"> • VGA, HDMI • 7.1 Audio • 1x GbE RJ-45 • 4x high speed USB 2.0 • 2x RS-232 serial ports 	<ul style="list-style-type: none"> • VGA, DVI • 3x RJ-45 Ethernet + SFP cage • 2x USB 2.0 • 2x UART DB-9
On-Board I/O	<ul style="list-style-type: none"> • 4 SATA connectors • eUSB mounting • 4x high speed USB 2.0 • RS-232/422/485 via headers • PS/2, LPT, Intrusion detection headers • TPM, LPT, LPC headers • LVDS via 40-pin connector 	<ul style="list-style-type: none"> • 4x high speed USB 2.0 available via headers • eUSB mounting SATA with power standard • SATA with power right-angle • 2x SATA vertical • IDE, CompactFlash socket • LVDS via 40-pin connector • RS-232/422/485 via headers • TPM, LPT, LPC, SMBUS headers 	<ul style="list-style-type: none"> • LVDS • Audio header • 2x SATA header • 2x USB headers • MicroSD socket
Expansion	<ul style="list-style-type: none"> • PEG (PCI Express x16) slot • 2 PCI Express x4 slots • PCI Express x1 slot (jumpered option) • PCI Express Mini Card w/ support for PCI Express Mini Card USB 	<ul style="list-style-type: none"> • PEG (PCI Express x16) slot • PCI Express x4 slots • PCI Express x1 slot (jumpered option) • PCI Express Mini Card • PCI 32 slot 	<ul style="list-style-type: none"> • 4 PCI Express x4 slots • PCI Express x4 slots • QuickEngent mezzanine card
Power	24-pin ATX and 4-pin ATX12V connectors.	24-pin ATX and 4-pin ATX12V connectors.	24-pin ATX and 4-pin ATX12V connectors.
Availability	GA	GA	GA

GA = General Availability



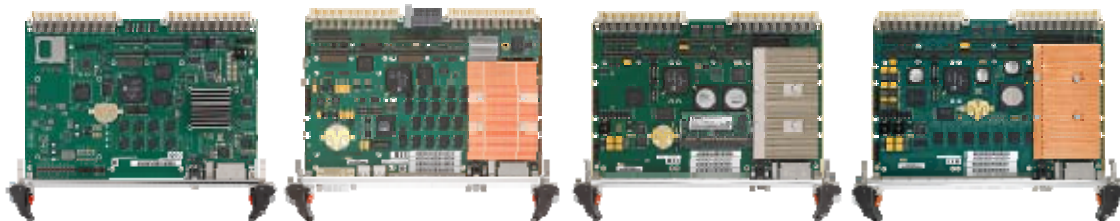
Product/Feature	iVPX7223	iVPX7220
Processor	2nd generation Intel® Core™ i7 2.2GHz dual-core	2nd generation Intel Core i7 2.2GHz dual- and quad-core
L2 Cache	4MB	Up to 6MB
Memory	Up to 8GB DDR3-1333 soldered	Up to 16GB DDR3-1333 soldered
Flash	4GB eUSB, 16MB SPI boot flash	8GB eUSB, 16MB SPI boot flash
PCH	Intel® QM67	Intel QM67
Ethernet	2x 1000Base-BX/KX	3x GbE, 2x 1000Base-BX
Graphics	Integrated 2D/3D graphics with DVI & VGA output	DVI/DisplayPort & VGA output with 2 DVI/DisplayPort & VGA output
USB	2	5
Serial	3	9
Fabric	2x PCIe x4 Gen2 to backplane	4x PCIe x4 Gen2, 2x PCIe x8 Gen2 to backplane
SATA	2x 6Gbps SATA 6Gbps, 1x 5Gbps SATA	2x 6Gbps SATA, 3x 5Gbps SATA
Front Panel	PMC/XMC	2 PMC/XMC
OpenVPX Payload Module Profiles	MOD3-PAY-2F2U-16.2.3-3	MOD6-PAY-4F1Q2U2T-12.2.1-3 and 12.2.1-4
OpenVPX Payload Slot Profiles	SLT3-PAY-2F2U-14.2.3 SLT3-PAY-1F1F2U-14.2.4	SLT6-PAY-4F2T-10.2.2 SLT6-PAY-4F1Q2U2T-10.2.1
RTM	iVPX7223-RTM	iVPX7220-RTM
Firmware	UEFI	UEFI
OS	Wind River VxWorks, Linux, Red Hat Fedora, Green Hills INTEGRITY, Windows Embedded Standard	Wind River VxWorks, Linux, Red Hat Fedora, Green Hills INTEGRITY, Windows XPe
Rugged	Extended temp -40 °C to +85 °C, air and conduction cooled	Extended temp -40 °C to +85 °C, air and conduction cooled
VITA	VITA 46 VPX, VITA 65 OpenVPX, VITA 48 REDI two-level maintenance (2LM)	VITA 46 VPX, VITA 65 OpenVPX, VITA 48 REDI two-level maintenance (2LM)
Availability	Air—May 2011 Conduction—August 2011	Air—August 2011 Conduction—November 2012

GA = General Availability



Product/Feature	MVME2500	iVME7210	MVME4100	MVME7100
Processor	Freescale QorIQ™ 800 MHz P2010 & 1.2 GHz P2020	Intel® Core™ i7 1.06GHz or 2.0 GHz	1.3 GHz 8548	1.33 GHz MPC8641D or 1.06 GHz MPC8640D
Cache	L1: 32KB/32KB per core L2: 512KB shared	L1: 32KB/32KB per core L2: 256KB per core L3: Up to 4MB shared	L1: 32KB/32KB L2: 512KB	L1: 32KB/32KB per core L2: 1MB per core
Memory	1-2GB DDR3-800 soldered	4-8GB DDR3-800/1066 soldered	2GB DDR2 SDRAM	2GB DDR2
Flash	16MB SPI, SDHC slot	4GB eUSB	4GB NAND + 128MB NOR	128MB (NOR) + 8GB (NAND)
Processor Host Bridge	Integrated	Integrated	Integrated	Integrated in MPC8641D
PCI Local Bus	(4) PCI Express	Not implemented	PCI Express	PCI Express
PMC Sites	(1) PMC/XMC	(2) PMC/XMC	2	(2) 64-bit
Ethernet	(3) total [(1) front, (1) rear, (1) configurable to front or rear]	(2) Front GbE (2) rear (VME P2 or P0)	(4) 10/100/1000	(4) 10/100/1000
Serial	(5) total [(1) front, (4) rear]	(1) front and (4) rear	(1) front and (4) rear	(5) 16550 compatible
USB	(1) front	Up to 3 front, 1 rear via P0	Yes	Yes
SATA	Optional SATA hard drive	HD mounting kit or (1) rear via P0	No	No
Front Panel	Up to (2) GbE, USB 2.0, Micro DB-9, PMC/XMC	(2) GbE, Serial, DVI-I, (up to 3) USB 2.0, (up to 2) PMC/XMCs	Console, (2) Ethernet, (2) PMC cutouts, USB 2.0, COM, LEDs, reset/abort	Console, (2) Ethernet, (2) PMC cutouts, USB, reset/abort, LEDs
RTM	MVME7216E	MVME7216E	MVME7216E	MVME7216E
Power Consumption	25 - 28 Watts	10.8 -28.5 Watts	~42 Watts	~60 Watts
Firmware	UBOOT	UEFI	MOTLoad	MOTLoad
RTOS/OS	Wind River VxWorks, Linux, Green Hills INTEGRITY	Wind River VxWorks 6.8, Fedora 12 Linux, LynuxWorks LynxOS	Wind River VxWorks/Linux	Wind River VxWorks, Linux
Rugged Options	Extended temp (-40 to +71) and rugged variants	—	Extended temp (-40 to +71)	Extended temp (-40 to +71)
Availability	April 2011	GA	GA	GA

GA = General Availability



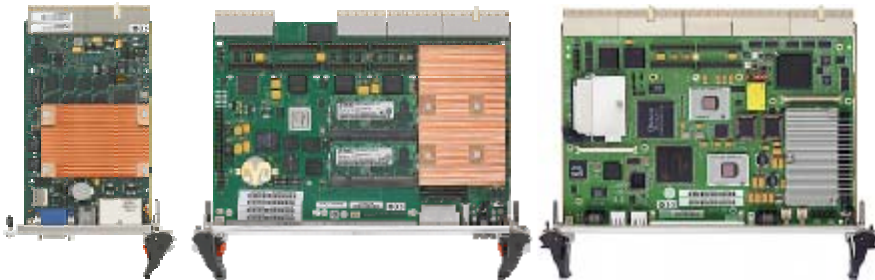
Product/Feature	MVME3100	MVME6100	MVME5500	MVME5100/5110
Processor	667 or 833 MHz MPC8540	1.267 GHz MPC7457	1 GHz MPC7457	450 MHz MPC750 / 500 MHz MPC7410
Cache	L1: 32KB/32KB L2: 256KB	L1: 32KB/32KB L2: 512KB L3: 2MB	L1: 32KB/32KB L2: 256KB L3: 2MB	L1: 32KB/32KB L2: 1MB / 2MB
Memory	Up to 512MB	Up to 2GB	Up to 1GB	Up to 1GB
Flash	64 or 128MB	64MB + 64MB	8MB +32MB	1MB + 16MB
Processor Host Bridge	Integrated in MPC8540	Discovery II	Universe II	Hawk 3
PCI Local Bus	66 MHz 64-bit PCI-X bridged to 33/66/100 MHz 64-bit PCI/PCI-X	33/66/100 MHz 64-bit PCI/PCI-X and 133 MHz 64-bit PCI-X	(2) 33/66 MHz, 64-bit	33 MHz, 64-bit
PMC Sites	(2) 64-bit	(2) 64-bit	(2) 64-bit	(2) 64-bit
Ethernet	10/100 and (2) 10/100/1000	(2) 10/100/1000	10/100 and 10/100/1000 82554	(2) 10/100 82559ER
Serial	(5) 16550 compatible	(2) 16550 compatible	(2) 16550 compatible	(2) 16550 compatible
USB	Yes	No	No	No
SATA	Yes	No	No	No
Front Panel	Console, Ethernet, (2) PMC cutouts, SATA, USB, reset/abort, LEDs	Console, (2) Ethernet, (2) PMC cutouts, reset/abort, LEDs	Console, (2) Ethernet, (2) PMC cutouts, reset/abort, LEDs	Console, (2) Ethernet, (2) PMC cutouts, reset/abort, LEDs
RTM	MVME7216E	MVME7126E/761	MVME7126E/761	MVME7126E/761
Power Consumption	~22.5 Watts	~42 Watts	~37.5 watts	~15 watts / ~17.5 watts
Firmware	MOTLoad	MOTLoad	MOTLoad	PPCbug
RTOS/OS	Wind River VxWorks, Linux®	Wind River VxWorks, Linux	Wind River VxWorks, Linux	Wind River VxWorks, Linux
Availability	GA	GA	GA	GA (RoHS 5/6)

GA = General Availability



Product/Feature	CPCI7203 (3U)	CPCI6200	CPCI-6020
Processor	1.06 GHz or 2.0 GHz Intel® Core™ i7	1.3 or 1.5 GHz MPC8572 Dual-core 6897 MIPS @ 1500 MHz	500 MHz MPC7410
L2 Cache	4MB	1MB	2MB
Memory	1GB, 2GB or 4GB DDR3-800/1066 soldered	2GB or 4GB DDR3 SO-DIMM	128MB – 2GB ECC SDRAM
MPU Bus Speed		—	100 MHz
Chipset Architecture	Mobile Intel® 5 Series (Ibex Peak-M PCH)	Integrated in MPC8572	PowerPlus III
PMC Sites	None	Dual	Single
Flash	4GB MicroSD installed (Designed for max)	NA	Available
Networking	Dual Gigabit Ethernet front, dual Gigabit Ethernet via rear RTM	Four Gigabit Ethernet	Dual 10/100 BaseT Ethernet
USB	Four USB 2.0 (two front, two rear)	One	Dual
Serial Interfaces	UART (rear)	Dual	Four
Peripheral Interfaces	SATA	(2) PCI-X PMC	EIDE, CompactFlash
Front Panel I/O	Dual Gigabit Ethernet, two USB 2.0, VGA	(2) PCI-X PMC, (2) GbE, COM, USB 2.0, reset switch, status LEDs	Serial, (2) Ethernet, PMC, Abort/Reset switches, status LEDs
Power Consumption	47 Watts	20-25W	24 watts
Software Support	Wind River VxWorks 6.8, Fedora 11/Red Hat 6 Linux, Green Hills INTEGRITY, VMware	Wind River VxWorks MontaVista CGE4.0	Linux®, Wind River VxWorks and other leading RTOSs
Rugged Options	-40 °C to +85 °C Air and conduction cooled	NA	NA
Availability	GA	GA	GA

GA = General Availability



Product/Feature	CPX8216
Shelf Form Factor	PICMG 2.0, 2.1 compliant. EIA Standard RS-310-C in 19" rack or 23" with brackets
Slot Count	16 total Simplex: One CPU, one HSC, 14 payload Duplex: Two CPU, two HSC, 12 payload
Shelf Size	21"
Shelf Height	12U
Network Infrastructure Support	Backplane H.110/Standard
Telecom CLK Support	No
Processing Board	CPCI-6115, CPCI-6065
Switch Blade	NA
Operating System	Optional high availability management software with Linux 2.6
Power Supply	DC, AC; 2+1 redundancy
Availability	GA

GA = General Availability



The Emerson Network Power company that accepts Buyer's order for Goods is herein referred to as the "Seller" and the person or entity purchasing goods or services ("Goods") and/or licensing software and/or firmware which are preloaded, or to be loaded into Goods ("Software") from Seller is referred to as the "Buyer." These Terms and Conditions, any price list or schedule, quotation, acknowledgment or invoice from Seller relevant to the sale of the Goods and licensing of Software and all documents incorporated by specific reference herein or therein constitute the complete and exclusive statement of the terms governing the sale of Goods and license of Software by Seller to Buyer. Seller's acceptance of Buyer's purchase order is expressly conditional on Buyer's assent to all of Seller's terms and conditions of sale, including terms and conditions that are different from or additional to the terms and conditions of Buyer's purchase order. Buyer's acceptance of the Goods and/or Software will manifest Buyer's assent to these Terms and Conditions. Seller reserves the right in its sole discretion to refuse orders. Notwithstanding anything to the contrary, in the event that the provisions of these Terms and Conditions conflict with the provisions of an effective agreement signed by a duly authorized representative of both parties ("Effective Agreement") that applies to the transaction(s) contemplated herein, the Effective Agreement shall control.

1. **PRICES:** Unless otherwise specified in writing by Seller, the price quoted or specified by Seller for the Goods and/or Software shall remain in effect for 30 days after the date of Seller's quotation or acknowledgment of Buyer's order for the Goods and/or Software, whichever occurs first, provided an unconditional authorization from Buyer for the shipment of the Goods and/or Software is received and accepted by Seller within such time period. If such authorization is not received by Seller within such 30 day period, Seller shall have the right to change the price for the Goods and/or Software to Seller's price for the Goods and/or Software at the time of shipment. All prices and licensee fees are exclusive of taxes, transportation and insurance, which are to be borne by Buyer.

2. **TAXES:** Any current or future tax or governmental charge (or increase in same) affecting Seller's costs of production, sale, or shipment, or which Seller is otherwise required to pay or collect in connection with the sale, purchase, delivery, storage, processing, use or consumption of Goods, shall be for Buyer's account and shall be added to the price or billed to Buyer separately, at Seller's election.

3. **TERMS OF PAYMENT:** Unless otherwise specified by Seller, terms are net 30 days from date of Seller's invoice in U.S. currency. Seller shall have the right, among other remedies, either to terminate this agreement or to suspend further performance under this and/or other agreements with Buyer in the event Buyer fails to make any payment when due, which other agreements Buyer and Seller hereby amend accordingly. Buyer shall be liable for all expenses, including attorneys' fees, relating to the collection of past due amounts. If any payment owed to Seller is not paid when due, it shall bear interest, at a rate to be determined by Seller, which shall not exceed the maximum rate permitted by law, from the date on which it is due until it is paid. Any payment due to either party under this agreement shall be made in full without any set-off, restriction, condition deduction or withholding for or on account of any counterclaim. Should Buyer's financial responsibility become unsatisfactory to Seller, cash payments or security satisfactory to Seller may be required by Seller for future deliveries of the Goods and/or Software. If such cash payment or security is not provided, in addition to Seller's other rights and remedies, Seller may discontinue deliveries.

4. **SHIPMENT AND DELIVERY:** While Seller will use all reasonable commercial efforts to maintain the delivery date(s) acknowledged

or quoted by Seller, all shipping dates are approximate and not guaranteed. Seller reserves the right to make partial shipments. Seller, at its option, shall not be bound to tender delivery of any Goods and/or Software for which Buyer has not provided shipping instructions and other required information. If the shipment of the Goods and/or Software is postponed or delayed by Buyer for any reason, Buyer agrees to reimburse Seller for any and all storage costs and other additional expenses resulting therefrom. Risk of loss and legal title to the Goods shall transfer from Seller to Buyer upon delivery to and receipt by carrier at Seller's shipping point. Unless otherwise specified by Seller, all shipments are F.C.A. Seller's shipping point (Incoterms 2000). Any claims for shortages or damages suffered in transit are the responsibility of Buyer and shall be submitted by Buyer directly to the carrier. Shortages or damages must be identified and signed for at the time of delivery.

Buyer shall inspect Goods delivered to it by Seller immediately upon receipt, and, any course of dealing to the contrary notwithstanding, failure of Buyer to give Seller notice of any claim within 10 days after receipt of such Goods shall be an unqualified acceptance of such Goods.

5. **LIMITED WARRANTY:** Subject to the limitations of Section 6 and unless otherwise specified by Seller in writing, Seller warrants that the Goods manufactured by Seller will be free from defects in material and workmanship and substantially meet Seller's published specifications at the time of shipment under normal use and regular service and maintenance for (a) the period specified in Seller's then current product data sheets from the date of manufacture by Seller for standard Embedded Power Goods, (b) 2 years from initial shipment for standard Embedded Computing Goods, and (c) the period specified by Seller in writing for custom Embedded Power Goods and custom Embedded Computing Goods. Unless otherwise stated in a separate Software license agreement, Seller makes no warranty as to any Software. **THE WARRANTIES SET FORTH IN SECTIONS 5 AND 7 ARE THE SOLE AND EXCLUSIVE WARRANTIES GIVEN BY SELLER WITH RESPECT TO THE GOODS AND SOFTWARE AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO SELLER IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT SELLER'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY SELLER FOR BUYER'S USE OR PURPOSE.**

These warranties do not extend to any losses or damages due to misuse, accident, abuse, neglect, negligence (other than Seller's), unauthorized modification or alteration, use beyond rated capacity, unsuitable power sources or environmental conditions, improper installation, repair, handling, maintenance or application or any other cause not the fault of Seller. To the extent that Buyer or its agents have supplied specifications, information, representation of operating conditions or other data to Seller in the selection or design of the Goods and the preparation of Seller's quotation, and in the event that actual operating conditions or other conditions differ from those represented by Buyer, any warranties or other provisions contained herein that are affected by such conditions shall be null and void.

If within 30 days after Buyer's discovery of any warranty defects within the warranty period, Buyer notifies Seller thereof in writing, Seller shall, at its option and as Buyer's exclusive remedy, repair, correct or replace per its return policy, or refund the purchase price for, that portion of the Goods found by Seller to be defective. Failure by Buyer to give

such written notice within the applicable time period shall be deemed an absolute and unconditional waiver of Buyer's claim for such defects. Advance written permission to return Goods must be obtained from Seller. Such Goods must be shipped transportation prepaid to Seller. Returns made without proper written permission will not be accepted by Seller. Seller reserves the right to inspect Goods prior to authorizing return. Goods repaired or replaced during the warranty period shall be covered by the foregoing warranties for the remainder of the original warranty period or 90 days from the date of shipment, whichever is longer.

Buyer assumes all other responsibility for any loss, damage, or injury to persons or property arising out of, connected with, or resulting from the use of Goods and/or Software, either alone or in combination with other products/components.

PRE-PRODUCTION (Prototype, Engineering Verification Test, or Design Verification Test) UNITS ARE SOLD "WHERE IS, AS IS, WITH ALL FAULTS" WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR INTENDED PURPOSE.

6. **LIMITATION OF REMEDY AND LIABILITY:** **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER (OTHER THAN THE WARRANTY PROVIDED UNDER SECTION 7) SHALL BE LIMITED TO REPAIR, CORRECTION OR REPLACEMENT, OR REFUND OF THE PURCHASE PRICE UNDER SECTION 5.**

SELLER SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND THE REMEDIES OF BUYER SET FORTH IN THIS AGREEMENT ARE EXCLUSIVE. IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY BUYER FOR THE SPECIFIC GOODS OR SOFTWARE PROVIDED BY SELLER GIVING RISE TO THE CLAIM OR CAUSE OF ACTION. BUYER AGREES THAT IN NO EVENT SHALL SELLER'S LIABILITY TO BUYER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES. The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use, revenue, reputation and data, costs incurred, including without limitation, for capital, fuel, power and loss or damage to property or equipment.

It is expressly understood that any technical advice furnished by Seller with respect to the use of the Goods and/or Software is given without charge, and Seller assumes no obligation or liability for the advice given, or results obtained, all such advice being given and accepted at Buyer's risk.

7. **PATENTS AND COPYRIGHTS:** Subject to the limitations of the second paragraph of Section 6, Seller warrants that the Goods sold, except as are made specifically for Buyer according to Buyer's specifications, do not infringe any valid U.S. patent or copyright in existence as of the date of shipment. This warranty is given upon the condition that Buyer promptly notifies Seller of any claim or suit involving Buyer in which such infringement is alleged and cooperates fully with Seller and permits Seller to control completely the defense, settlement or compromise of any such allegation of infringement. Seller's warranty as to utility patents only applies to infringement arising solely out of the inherent operation according to Seller's specifications and instructions of such Goods. In the event such Goods are held to infringe such a U.S. patent or

copyright in such suit, and the use of such Goods is enjoined, or in the case of a compromise or settlement by Seller, Seller shall have the right, at its option and expense, to procure for Buyer the right to continue using such Goods, or replace them with non-infringing Goods, or modify same to become non-infringing, or grant Buyer a credit for the depreciated value of such Goods and accept return of them. In the event of the foregoing, Seller may also, at its option, cancel the agreement as to future deliveries of such Goods, without liability.

8. EXCUSE OF PERFORMANCE: Seller shall not be liable for delays in performance or for non-performance due to acts of God; acts of Buyer; war; fire; flood; weather; sabotage; epidemics; strikes or labor disputes; civil disturbances or riots; governmental requests, restrictions, allocations, laws, regulations, orders or actions; unavailability of or delays in transportation; default of suppliers; or unforeseen circumstances or any events or causes beyond Seller's reasonable control. Deliveries or other performance may be suspended for an appropriate period of time or canceled by Seller upon notice to Buyer in the event of any of the foregoing, but the balance of the agreement shall otherwise remain unaffected as a result of the foregoing.

If Seller determines that its ability to supply the total demand for the Goods, or to obtain material used directly or indirectly in the manufacture of the Goods, is hindered, limited or made impracticable due to causes set forth in the preceding paragraph, Seller may allocate its available supply of the Goods or such material (without obligation to acquire other supplies of any such Goods or material) among its purchasers on such basis as Seller determines to be equitable without liability for any failure of performance which may result therefrom.

9. RESCHEDULE/CANCELLATION: Unless otherwise agreed in writing by Seller, orders under this agreement may not be rescheduled or canceled by Buyer for any reason.

10. CHANGES: Buyer may request changes or additions to the Goods and/or Software consistent with Seller's specifications and criteria. In the event such changes or additions are accepted by Seller, Seller may revise the price, license fees and dates of delivery.

Seller reserves the right to change designs and specifications for the Goods and/or Software without prior notice to Buyer, except with respect to Goods and/or Software being made-to-order for Buyer. Seller shall have no obligation to install or make such change in any Goods and/or Software manufactured prior to the date of such change.

11. NUCLEAR/MEDICAL: GOODS AND SOFTWARE SOLD HEREUNDER ARE NOT FOR USE IN CONNECTION WITH ANY NUCLEAR, MEDICAL, LIFE-SUPPORT AND OTHER HIGH RISK APPLICATIONS WHERE GOODS OR SOFTWARE FAILURE COULD LEAD TO LOSS OF LIFE OR CATASTROPHIC PROPERTY DAMAGE. Buyer accepts Goods and Software with the foregoing understanding, agrees to communicate the same in writing to any subsequent purchasers or users and to defend, indemnify and hold harmless Seller from any claims, losses, suits, judgments and damages, including incidental and consequential damages, arising from such use, whether the cause of action be based in tort, contract or otherwise, including allegations that the Seller's liability is based on negligence or strict liability.

12. ASSIGNMENT: Buyer shall not assign its rights or delegate its duties hereunder or any interest herein without the prior written consent of Seller, and any such assignment, without such consent, shall be void.

13. SOFTWARE: Notwithstanding any other provision herein to the contrary, Seller or applicable third party licensor to Seller shall retain all rights of ownership and title in its respective Software, including

without limitation all rights of ownership and title in its respective copies of such Software. Except as otherwise provided herein, Buyer is hereby granted a nonexclusive, non-transferable royalty free license to use the Software incorporated into the Goods solely for purposes of Buyer properly utilizing such Goods purchased from Seller. All other Software shall be furnished to, and used by, Buyer only after execution of Seller's (or the licensor's) applicable standard license agreement, the terms of which are incorporated herein by reference. The Software is Seller's own or Seller's supplier's proprietary information, and Buyer and its employees and agents shall not disclose the Software to others without Seller's prior written consent.

14. TOOLING: Tool, die, and pattern charges, if any, are in addition to the price of the Goods and are due and payable upon completion of the tooling. All such tools, dies and patterns shall be and remain the property of Seller. Charges for tools, dies, and patterns do not convey to Buyer, title, ownership interest in, or rights to possession or removal, or prevent their use by Seller for other purchasers, except as otherwise expressly provided by Seller and Buyer in writing with reference to this provision.

15. INTELLECTUAL PROPERTY: Seller's intellectual property, including without limitation, all patents, copyrights, trade secrets, trade-dress and any other intellectual property of any kind (including without limitation, that which exists in the underlying technology), furnished by Seller to Buyer in connection with this agreement is the property of Seller and Seller retains all rights, including without limitation, exclusive rights of use, licensing, and sale. Possession of Goods, pre-production units, specifications, prints or drawings, or any other materials does not convey to Buyer any rights or license thereto.

16. BUYER'S COMPLIANCE WITH LAWS: In connection with the transactions contemplated by this agreement, Buyer is familiar with and shall fully comply with all applicable laws, regulations, rules and other requirements of the United States and of any applicable state, foreign and local governmental body in connection with the purchase, license, receipt, use, transfer and disposal of the Goods and/or Software.

17. EXPORT/IMPORT: Buyer agrees that all applicable import and export control laws, regulations, orders and requirements, including without limitation those of the United States and the European Union, and the jurisdictions in which the Seller and Buyer are established or from which Goods and/or Software may be supplied, will apply to their receipt and use. In no event shall Buyer use, transfer, release, import, export, Goods and/or Software in violation of such applicable laws, regulations, orders or requirements.

18. GOVERNMENT CONTRACT CONDITIONS: In the event Buyer supplies Goods or Software to the U.S. Government or to a prime contractor selling to the U.S. Government, the following Federal Acquisition Regulation (FAR) clauses are accepted by Seller and are made part of this agreement applicable to such supply: 52.222-21 Prohibition of Segregated Facilities; 52.222-26 Equal Opportunity; 52.222-35 Equal Opportunity For Special Disabled Veterans, Veterans of Vietnam Era, and Other Eligible Veterans; 52.222-36 Affirmative Action For Workers with Disabilities; and 52.219-8 Utilization of Small Business Concerns. No additional FAR or FAR Supplement clauses are accepted by Seller. In the event Buyer elects to sell Goods or Software to the U.S. Government or any national, state, provincial or local non-U.S. governmental entity or to a prime contractor selling to such entities, Buyer does so solely at its own option and risk, and agrees not to obligate Seller as a subcontractor or otherwise to the U.S. Government or other governmental entity except as described in this Section 18. Buyer remains solely and exclusively re-

sponsible for compliance with all statutes and regulations governing sales to the U.S. Government or any national, state, provincial or local non-U.S. governmental entity. Seller makes no representations, certifications or warranties whatsoever with respect to the ability of its Goods, Software, or prices to satisfy any such statutes and regulations.

19. GENERAL PROVISIONS: These terms and conditions supersede all other communications, negotiations and prior oral or written statements regarding the subject matter of these terms and conditions. No change, modification, rescission, discharge, abandonment, or waiver of these terms and conditions shall be binding upon the Seller unless made in writing and signed on its behalf by a duly authorized representative of Seller. No conditions, usage of trade, course of dealing or performance, understanding or agreement purporting to modify, vary, explain, or supplement these terms and conditions shall be binding unless hereafter made in writing and signed by the party to be bound, and no modification or additional terms shall be applicable to this agreement by Seller's receipt, acknowledgment, or acceptance of purchase orders, shipping instruction forms, or other documentation containing terms at variance with or in addition to those set forth herein. Any such modifications or additional terms are specifically rejected and deemed a material alteration hereof. If this document shall be deemed an acceptance of a prior offer by Buyer, such acceptance is expressly conditional upon Buyer's assent to any additional or different terms set forth herein. No waiver by either party with respect to any breach or default or of any right or remedy, and no course of dealing, shall be deemed to constitute a continuing waiver of any other breach or default or of any other right or remedy, unless such waiver be expressed in writing and signed by the party to be bound. All typographical or clerical errors made by Seller in any quotation, acknowledgment or publication are subject to correction. In the event that any provision or portion thereof contained in the Contract is held to be unenforceable, the Contract shall be construed without such provision or portion thereof.

(A) If Seller is a U.S. incorporated entity: This Agreement shall be governed by the laws of the State of Delaware, U.S.A., without reference to its choice or conflict of laws principles. The parties agree to submit to the exclusive jurisdiction of the courts of the State of Delaware for all actions arising in connection herewith.

(B) If Seller is a European incorporated entity: This Agreement shall be governed by the laws of England. Any dispute arising out of or in connection with this Agreement that cannot be resolved through friendly consultation shall be referred to and finally resolved by arbitration in London, England before the London Court of International Arbitration in accordance with its arbitration rules. The arbitral award shall be final and binding on the parties.

(C) If Seller is an entity incorporated in the Asia Pacific region: This Agreement shall be governed by the laws of the Hong Kong Special Administrative Region of the People's Republic of China. Any dispute arising out of or in connection with this Agreement that cannot be resolved through friendly consultation shall be referred to and finally resolved by arbitration in Hong Kong before the Hong Kong International Arbitration Centre in accordance with its arbitration rules. The arbitral award shall be final and binding on the parties.

(D) No action, regardless of form, arising out of transactions relating to this agreement, may be brought by either party more than two (2) years after the cause of action has accrued. The U.N. Convention on Contracts for the International Sales of Goods shall not apply to this agreement.

Revised July 8, 2010

About Emerson Network Power

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