CPUs

The high-performance CPU is based on the latest technology processor with fast computation and high throughput. The controller can manage up to 32K of I/O in a number of standard languages. The powerful CPU enables complex applications to be easily solved with the high performance processor and up to 64 Mbytes of user memory. The RX3i supports multiple IEC languages and C programming to give you program flexibility. The RX3i increases machine cycle times, reduces downtime with its extensive diagnostics and hot swap capability, and enables you to store large amounts of data to reduce external hardware cost.

	IC695CPE330	IC695CPK330	IC695CPE305
Product Name	**RX3i CPU (only) with Ethernet port**	**RX3i CPU (with Energy Pack) with Ethernet port**	**RX3i CPU with built-in USB Master port, Ethernet port and serial port**
Lifecycle Status	Active	Active	Active
Module Type	Controller	Controller	Controller
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Boolean Execution Speed (ms/K)			.072
User Logic Memory	64Meg bytes	64Meg bytes	5Meg bytes
Battery Backed Real Time Clock	Yes	Yes	Yes
Dynamic Data Back-up	Battery Backup only	Energy Pack Support (Battery-less Backup)	Energy Pack Support (Battery-less Backup)
I/O Discrete Points	32K	32K	32K
I/O Analog Points	32K	32K	32K
Type of Memory Storage	1CFast (Very high speed Compactflash)	1CFast (Very high speed Compactflash)	SRAM, Flash
Processor Speed (MHz)	1.6GHz Dual Core	1.6GHz Dual Core	1.1GHz
USB -A 2.0 Master Port	Yes. CPU application upload/download to a Thumb Drive or Smart Phone	Yes. CPU application upload/download to a Thumb Drive or Smart Phone	Yes. CPU application upload/download to a Thumb Drive or Smart Phone
Built-in Ethernet Ports	One RJ-45 port, 10/100/1000Mbaud. One 2-port switch 10/100/1000	One RJ-45 port, 10/100/1000Mbaud. One 2-port switch 10/100/1000	One RJ-45 port, 10/100Mbaud. SRTP support for programmer only
Built-in Serial Ports	None. Serial functionality should be moved to the IC695CMM002 or IC695CMM004 when migrating to the CPE330.	None. Serial functionality should be moved to the IC695CMM002 or IC695CMM004 when migrating to the CPK330.	One RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)
Total Number of Local Racks	8	8	8
Communications Options	IEC104, DNP3 outstation, IEC61850 client, HART SNP, SRTP, OPC-UA EGD	IEC104, DNP3 outstation, IEC61850 client, HART SNP, SRTP, OPC-UA EGD	Serial, Genius, CMX (Reflective Memory), Ethernet
Supported IO Protocols	PROFINET, EGD, Modbus TCP, PROFIBUS, Genius, DeviceNet, ModBus RTU, Reflective Memory (CMX)	PROFINET, EGD, Modbus TCP, PROFIBUS, Genius, DeviceNet, ModBus RTU, Reflective Memory (CMX)	PROFINET, EGD, Modbus TCP, PROFIBUS, Genius, DeviceNet, ModBus RTU, Reflective Memory (CMX)
Software Programming Support	Machine Edition Logic Developer PLC 8.60 SIM 8 or above	Machine Edition Logic Developer PLC 8.60 SIM8 or above	Machine Edition Logic Developer Professional edition 7.0 SIM 3 or above
Program Languages Supported	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram
Internal Power Used	+3.3 VDC: 0.0 A +5 VDC: 0.0A (up to 1.5 A if USB is fully loaded with 0.5 A) +24 VDC: 0.625A without Energy Pack, G280.750 A with IC695ACC402 Energy Pack	+3.3 VDC: 0.0 A +5 VDC: 0.0A (up to 1.5 A if USB is fully loaded with 0.5 A) +24 VDC: 0.625A without Energy Pack, G280.750 A with IC695ACC402 Energy Pack	+3.3 VDC: 1.0 A +5 VDC: 1.0 A (up to 1.5 A if USB is fully loaded with 0.5 A) +24 VDC: 0.5A at startup, 0.1 A during run time (Applies only if Energy Pack is connected to the CPE305.)
Number of Slots Module Occupies on Backplane	2	2	1
HART Pass-through	HART Pass-through – Fully integrated into the PLC system over a monitored communications network, you can simply and securely access HART instruments directly to remotely manage and mitigate operational issues with no additional equipment required.		

CPUs

The high-performance CPU is based on the latest technology processor with fast computation and high throughput. The controller can manage up to 32K of I/O in a number of standard languages. The powerful CPU enables complex applications to be easily solved with the high performance processor and up to 64 Mbytes of user memory. The RX3i supports multiple IEC languages and C programming to give you program flexibility. The RX3i increases machine cycle times, reduces downtime with its extensive diagnostics and hot swap capability, and enables you to store large amounts of data to reduce external hardware cost.

	IC695CPE310	IC695CPU320	IC695CPU315
Product Name	**RX3i CPU with built-in USB Master port, Ethernet port and 2 serial ports**	**RX3i CPU with two built-in serial ports**	**RX3i CPU with two built-in serial ports**
Lifecycle Status	Active	Mature w/ replacement	Mature w/ replacement
Module Type	Controller	Controller	Controller
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Boolean Execution Speed (ms/K)	.072	0.047	0.047
User Logic Memory	10Meg bytes	64Mega bytes	20Meg bytes
Battery Backed Real Time Clock	Yes	Yes	Yes
Dynamic Data Back-up	Energy Pack Support (Battery-less Backup)	Battery Backup only	Battery Backup only
I/O Discrete Points	32K	32K	32K
I/O Analog Points	32K	32K	32K
Type of Memory Storage	SRAM, Flash	SRAM, Flash	SRAM, Flash
Processor Speed (MHz)	1.1GHz	1GHz	1GHz
USB -A 2.0 Master Port	Yes. CPU application upload/download to a Thumb Drive or Smart Phone	No	No
Built-in Ethernet Ports	One RJ-45 port, 10/100Mbaud. SRTP support for programmer only		
Built-in Serial Ports	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)
Total Number of Local Racks	8	8	8
Communications Options	Serial, Genius, CMX (Reflective Memory), Ethernet	Serial, Genius, CMX (Reflective Memory), Ethernet	Serial, Genius, CMX (Reflective Memory), Ethernet
Supported IO Protocols	Ethernet (PROFINET, Ethernet Global Data, Channels, Modbus TCP Server and Client), Genius, PROFIBUS DP, DeviceNet	Ethernet (PROFINET, Ethernet Global Data, Channels, Modbus TCP Server and Client), Genius, PROFIBUS DP, DeviceNet	Ethernet (PROFINET, Ethernet Global Data, Channels, Modbus TCP Server and Client), Genius, PROFIBUS DP, DeviceNet
Software Programming Support	Machine Edition Logic Developer Professional edition 7.0 SIM 3 or above	Machine Edition Logic Developer Professional edition 5.6 or above	Machine Edition Logic Developer Professional edition 5.6 or above
Program Languages Supported	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram
Internal Power Used	+3.3 VDC: 1.0 A +5 VDC: 1.0 A (up to 1.5 A if USB is fully loaded with 0.5 A) +24 VDC: 0.5A at startup, 0.1 A during run time (Applies only if Energy Pack is connected to the CPE305.)	1750 mA @ 3.3 VDC; 1200 mA @ 5 VDC	1750 mA @ 3.3VDC; 1200 mA @ 5VDC (Check Data sheet)
Number of Slots Module Occupies on Backplane	2	2	2
HART Pass-through	HART Pass-through – Fully integrated into the PLC system over a monitored communications network, you can simply and securely access HART instruments directly to remotely manage and mitigate operational issues with no additional equipment required.		

High Availability Redundant Controllers

High Availability CPU Redundancy family allows critical application or process to continue operating if a failure occurs in any single component. A High Availability system uses two or more CPUs; an active unit that actively controls the process, and one or more backup units that are synchronized with the active unit and can take over the process should it becomes necessary.

An RX3i QuadPAC solution utilizes four CRU320QP controllers — one is a master controller and three are synchronized backup controllers. The QuadPAC solution features "Smart Redundancy," a patent pending algorithm that calculates the relative system availability in real time and identifies the most available controller as master. The I/O racks may be grouped into either single (one I/O rack), redundant (two I/O racks), or triple redundant (three I/O racks) rack configurations.

	IC695CRU320	IC695CRU320QP
Product Name	**RX3i Bumpless Redundant High Availability CPU with two built-in serial ports. (Requires IC695RMX128 Data Sync Module)**	**QuadPAC CPU for RX3i Bumpless Redundant High Availability CPU with two built-in serial ports. (Requires IC695RMX128 Data Sync Module AND Quad Redundancy Solution Code)**
Lifecycle Status	Mature w/ replacement	Mature w/ replacement
Module Type	Redundant Controller	Quad System Redundant Controller
Backplane Support	Universal Backplane Only. Uses PCI Bus.	Universal Backplane Only. Uses PCI Bus.
Boolean Execution Speed (ms/K)	0.047	0.047
User Logic Memory	64Meg bytes	64Meg bytes
Battery Backed Real Time Clock	Yes	Yes
I/O Discrete Points	32K	32K
I/O Analog Points	32K	32K
Type of Memory Storage	SRAM, Flash	SRAM, Flash
Dynamic Data Back-up	Battery Backup only	Battery Backup only
Processor Speed	1GHz	1GHz
Built-in Communication Ports	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)	One RS-485 port and one RS-232 port. Supports SNP, Serial I/O, Modbus Slave and Modbus Master (Application code)
Total Number of Racks	8	8
Communications Options	Serial, Genius, CMX, Ethernet, PROFINET, PROFIBUS, and DeviceNet	Serial, Genius, CMX, Ethernet, PROFINET, PROFIBUS, and DeviceNet
Supported IO Protocols	Ethernet (Ethernet Global Data, Channels, Modbus TCP Server and Client), PROFIBUS DP, DeviceNet	Ethernet (Ethernet Global Data, Channels, Modbus TCP Server and Client), PROFIBUS DP, DeviceNet
Software Programming Support	Machine Edition Logic Developer Professional edition 5.7 or above	Machine Edition Logic Developer Professional edition 7.0 SIM 8 or above
Program Languages Supported	Ladder Logic, Structured Text, C, Function Block Diagram	Ladder Logic, Structured Text, C, Function Block Diagram
Redundancy Maximum amount of data in for Syncronization	Up to 2 Mbytes beginning and end of scan	Up to 2 Mbytes beginning and end of scan
Redundancy Typical Base Sweep Time (Reference Data Transfer List Impact)	3.66 msec: 1K Discrete I/O, 125 Analog I/O and 1K Registers 3.87 msec: 2K Discrete I/O, 250 Analog I/O and 2K Registers 4.30 msec: 4K Discrete I/O, 500 Analog I/O and 4K Registers 5.16 msec: 8K Discrete I/O, 1K Analog I/O and 8K Registers	3.66 msec: 1K Discrete I/O, 125 Analog I/O and 1K Registers 3.87 msec: 2K Discrete I/O, 250 Analog I/O and 2K Registers 4.30 msec: 4K Discrete I/O, 500 Analog I/O and 4K Registers 5.16 msec: 8K Discrete I/O, 1K Analog I/O and 8K Registers
Redundancy Switchover Time	Maximum 1 logic scan, minimum 3.133 msec.	Maximum 1 logic scan, minimum 3.133 msec.
CPU Scan Syncronization	Automatic Each Scan	Automatic Each Scan
Redundant Synch LAN	Yes	Yes
Redundant I/O LAN	Yes	Yes
Internal Power Used	1750 mA @ 3.3 VDC; 1200 mA @ 5 VDC	1750 mA @ 3.3 VDC; 1200 mA @ 5 VDC
Number of Slots Module Occupies on Backplane	2	2
HART Pass-through	HART Pass-through – Fully integrated into the PLC system over a monitored communications network, you can simply and securely access HART instruments directly to remotely manage and mitigate operational issues with no additional equipment required.	