

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

GE

IC698CPE020-GM

700 MHZ PACSYSTEMS RX7I CPU WITH ETHERNET, GM REVISION

Used with the applicable GE PACSystems RX7i configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: GE Fanuc PACSystems CPU Reference Manual, GFK-2222B

PACSystems Control System Overview

The PACSystems controller environment combines performance, productivity, openness and flexibility. The PACSystems control system integrates advanced technology with GE Fanuc's existing systems. The result is seamless migration that protects your investment in I/O and application development.

PACSystems is driven by Machine Edition programming software, which provides a universal engineering development environment for all programming, configuration and diagnostics of PACSystems. A PACSystems CPU is programmed and configured using the programming software to perform real time control of machines, processes, and material handling systems. The CPU communicates with I/O and smart option modules through a rack-mounted backplane. It communicates with the programmer and/or HMI devices via the Ethernet ports (may be embedded for RX7i) or via the serial ports 1 and 2 using GE Fanuc SNP-X, Serial I/O, or Modbus RTU slave protocols.

PACSystems CPU Models

Family	Catalog Number	Description
RX3i	IC695CPU310	300MHz CPU
RX7i	IC698CPE010	300Mhz CPU with embedded Ethernet interface
	IC698CPE020	700Mhz CPU with embedded Ethernet interface
	IC698CRE020	700MHz Redundancy CPU with embedded Ethernet interface

PACSystems CPU models have the following features in common:

- Programming in Ladder Diagram and C.
- Floating point (real) data functions.
- Configurable data and program memory.
- 10 Mbytes of battery-backed RAM for user data (program, configuration, register data, and symbolic variable) storage
- 10 Mbytes of non-volatile built-in flash memory for user data (program, configuration, register data, and symbolic variable) storage. Use of this flash memory is optional.
- Battery backup for program, data, and time of day clock.
- Configurable Run/Stop mode switch.
- Embedded RS-232 and RS-485 communications.
- Up to 512 program blocks. Maximum size for a block is 128KB.
- Auto Located Symbolic Variables, which allows you to create a variable without specifying a reference address.
- Bulk memory area accessed via reference table %W. The upper limit of this memory area can be configured to the maximum available user RAM.
- Larger reference table sizes, compared to Series 90 CPUs: 32Kbits for discrete %I and %Q and up to 32K words each for analog %AI and %AQ.
- Test Edit mode that allows you to easily test modifications to a running program.

RX7i Features and Specifications

- **IC698CPE010**: 300MHz CPU microprocessor
- **IC698CPE020**: 700MHz CPU microprocessor
- **IC698CRE020**: 700MHz CPU microprocessor with redundancy

Indicators

Five CPU LEDs indicate the operating status of various CPU functions.

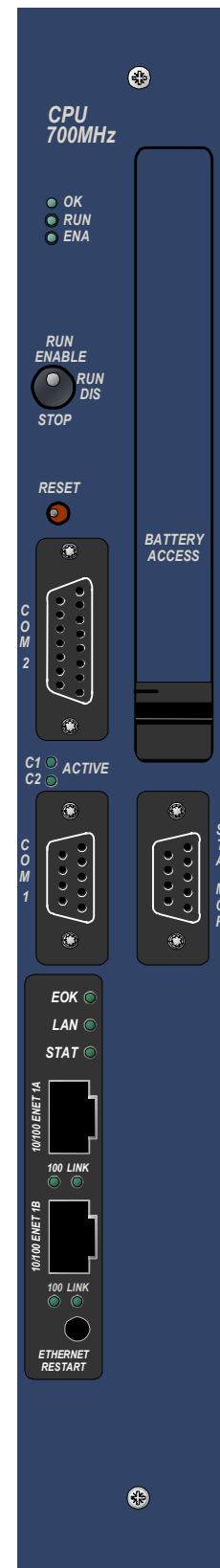
The Ethernet Interface indicators consist of seven light emitting diodes (LEDs). All are single-color green LEDs controlled by the Ethernet interface.

- Module OK (EOK)
- LAN online (LAN)
- Status (STAT)
- Two activity LEDS (LINK)
- Two speed LEDS (100)

The **EOK**, **LAN**, and **STAT** LEDs are grouped together and indicate the state and status of the Ethernet interface.

Each Ethernet port has two green LED indicators, **Link** and **100**. The **LINK** LED indicates the network link status and activity. This LED is illuminated when the link is physically connected and blinks when traffic is detected at the port. Note that traffic at the port does not necessarily mean that traffic is present at the Ethernet interface, since the traffic may be going between ports of the switch. The **100** LED indicates the network data speed (10 or 100 Mb/sec). This LED is illuminated if the network connection is 100 Mbps.

LED operation is described in the following tables.



Error Checking and Correction

The redundancy CPU, IC698CRE020, is shipped with error checking and correction (ECC) enabled. Enabling ECC results in slightly slower system performance, primarily during power-up, because it uses an extra 8 bits that must be initialized. If you upgrade the firmware on a non-redundancy CPU model IC698CPE020 to support redundancy, you must set the ECC jumper to the enabled state as described in the installation instructions provided with the upgrade kit. This feature is not available for other CPUs in the PACSystems family.

For details on ECC, refer to the *PACSystems Hot Standby CPU Redundancy User's Guide*, GFK-2308.

Specifications

For environmental specifications, see "RX7i General Specifications" in Appendix A of the *RX7i Installation Manual*, GFK-2223.

IC698CPE010, IC698CPE020, and IC698CRE020	
Battery: Memory retention	5 years at 20°C (68°F) 40 days nominal without applied power
Program storage	Up to 10 Mbytes of battery-backed RAM 10 Mbytes of non-volatile flash user memory
Current required from 5V bus	CPE010: 3.2 Amps nominal CPE020, CRE020: 4.5 Amps nominal
Operating Temperature	CPE010: 0 to 50°C (32°F to 122°F) 0 to 60°C (32°F to 140°F) with fan tray CPE020, CRE020: 0 to 60°C (32°F to 140°F), fan tray required
Floating point	Yes
Boolean execution speed, typical CPE010 CPE020	0.195ms per 1000 Boolean contacts/coils 0.14ms per 1000 Boolean contacts/coils
Time of Day Clock accuracy Elapsed Time Clock (internal timing) accuracy	Maximum drift of 9 seconds per day 0.01% maximum
Embedded communications	RS-232, RS-485, Ethernet interface
Serial Protocols supported	Modbus RTU Slave, SNP, Serial I/O To determine availability for a given firmware version, please refer to the <i>Important Product Information</i> document provided with the CPU.
Ethernet Ports	Embedded auto-sensing 10/100 Mbps half/full duplex Ethernet interface
VME Compatibility	System designed to support the VME64 standard ANSI/VITA 1
Program blocks	Up to 512 program blocks. Maximum size for a block is 128KB.
Memory (For a detailed listing of memory areas, refer to chapter 7.)	%I and %Q: 32Kbits for discrete %AI and %AQ: configurable up to 32Kwords %W: configurable up to the maximum available user RAM Symbolic: configurable up to 10 Mbytes
Error Checking and Correction	CRE020 only.

IC698CPE010, IC698CPE020, and IC698CRE020	
<i>Ethernet Interface Specifications</i>	
Web-based data monitoring	Up to 16 web server and FTP connections (combined)
Ethernet data rate	10Mb/sec and 100Mb/sec
Physical interface	10BaseT RJ45
WinLoader support	Yes
Number of EGD configuration-based pages	255
Time synchronization	SNTP
Selective consumption of EGD	Yes
Load EGD configuration from PLC to programmer	Yes
Remote Station Manager over UDP	Yes
Local Station Manager (RS-232)	Dedicated RS-232 port
Configurable Advanced User Parameters	Yes