



Diagnostic Utility for Rockwell Automation Industrial Computers

Topics	Page
Where to Find the Utility	3
When to Run the Utility	3
Interpret Results	3
Prepare to Boot from the Industrial Computer Diagnostic Utility CD	4
Start the Diagnostic Utility from CD	4
Copy the Utility to Floppy Disk	5
Start the Diagnostic Utility from Floppy Disk	6
Use the Diagnostic Utility	6
Run a Test Set	7
Examine the Test Results	9
Display the Test Results	10
PC Information	11
Exit the Diagnostic Utility	11

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc., is prohibited.

Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING



Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

ATTENTION



Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence

SHOCK HAZARD



Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

BURN HAZARD



Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

About This Publication

The diagnostic utility is a tool to diagnose hardware issues with Rockwell Automation industrial computers. This publication provides instructions on how to use this utility.

If a computer malfunctions, it is often difficult to determine whether a hardware or software problem is the cause. The diagnostic utility can test many hardware components of a computer, including the processor, memory, and hard drive to determine the underlying cause of a malfunction.

After running one or more test sets, you can generate a report to determine if a hardware problem exists. Save this report to a file if you need to contact technical support for assistance.

Where to Find the Utility

The diagnostic utility is on the Industrial Computer Diagnostic Utility CD that is shipped with every industrial computer. This document is also available at <http://www.rockwellautomation.com/literature>.

When to Run the Utility

If a computer is malfunctioning, you can run the diagnostic utility while the computer is still in its normal environment. This provides an initial diagnosis without requiring the computer to be disconnected. Test sets can generate results in five minutes or up to eight hours if a more comprehensive examination is selected.

IMPORTANT

The diagnostic utility will not permanently affect the computer. However, to run the diagnostic utility, you must reboot the computer. Any software installed on the computer will not be available until the diagnostic utility finishes its testing.

Run the diagnostic utility before contacting technical support. The test results can assist technical support to troubleshoot an issue.

Interpret Results

The diagnostic utility provides a method to test for hardware issues with a computer. However, certain issues may require further examination.

If the diagnostic utility does not find any hardware issues, a software anomaly may be the cause of the fault. Software anomalies are outside the scope of this utility.

If a fault is detected, contact technical support. Provide them with a test results report.

Prepare to Boot from the Industrial Computer Diagnostic Utility CD

To run the diagnostic utility, the computer must be set to boot first from a CD/DVD-ROM drive before the hard disk drive.

Follow these steps to enable a computer to boot from a CD/DVD-ROM.

1. Connect a USB CD/DVD-ROM drive if an internal drive is not available.
Make sure no other USB devices are connected.
2. Power up the computer.
3. Enter the CMOS setup in BIOS by pressing the F2 key during BIOS POST when the system memory and hard drive information appears.
4. Verify that the CD/DVD-ROM is set to a higher priority than the hard drive; otherwise, change the priority.
5. Insert the Industrial Computer Diagnostic Utility CD into the CD/DVD-ROM tray.
6. Push the tray into the operating position.
7. If you changed the boot order priority, select Save and Exit CMOS Setup; otherwise, select Exit without saving.

Start the Diagnostic Utility from CD

TIP

If the computer needs to be removed from its normal environment to perform diagnostics, problems can be harder to diagnose. If possible, run the diagnostic utility on the computer while it is in the same environment in which the malfunction was observed.

To start the Diagnostic Utility from CD, with the Industrial Computer Diagnostic Utility CD in the CD/DVD-ROM drive, boot the computer.

The computer will proceed to boot from the Industrial Computer Diagnostic Utility CD. This process takes approximately one minute and requires no user input.

Copy the Utility to Floppy Disk

You can copy the diagnostic utility onto a floppy disk and run it without the Industrial Computer Diagnostic Utility CD. This requires a blank 3.5-in. floppy disk and an external floppy disk drive.

TIP

It is not required that you copy the diagnostic utility to a floppy disk. This is recommended only if the product does not have a functioning CD/DVD-ROM drive. You can copy the utility from a CD/DVD-ROM drive of another computer to a floppy disk using an external floppy disk drive.

Follow these steps to copy the utility to a floppy disk.

1. Set the floppy disk drive to be a higher boot priority than the hard disk drive.

See [Prepare to Boot from the Industrial Computer Diagnostic Utility CD](#) on page 4 for instructions on setting boot order.

2. Boot the computer into the Windows operating system.
3. Insert the Industrial Computer Diagnostic Utility CD into the CD/DVD-ROM drive.
4. Insert a blank 3.5-in. floppy disk into the floppy disk drive.

IMPORTANT

All data on the floppy disk will be lost. Verify that no important data is stored on the disk.

5. Click on the Start menu and choose Run.
6. From the Open pull-down list, type:
< CD Drive Letter>:\PC-CHECK\
7. Double click on pccheck62.exe.
8. Click OK, then follow the prompts.

The process takes approximately two minutes to complete.

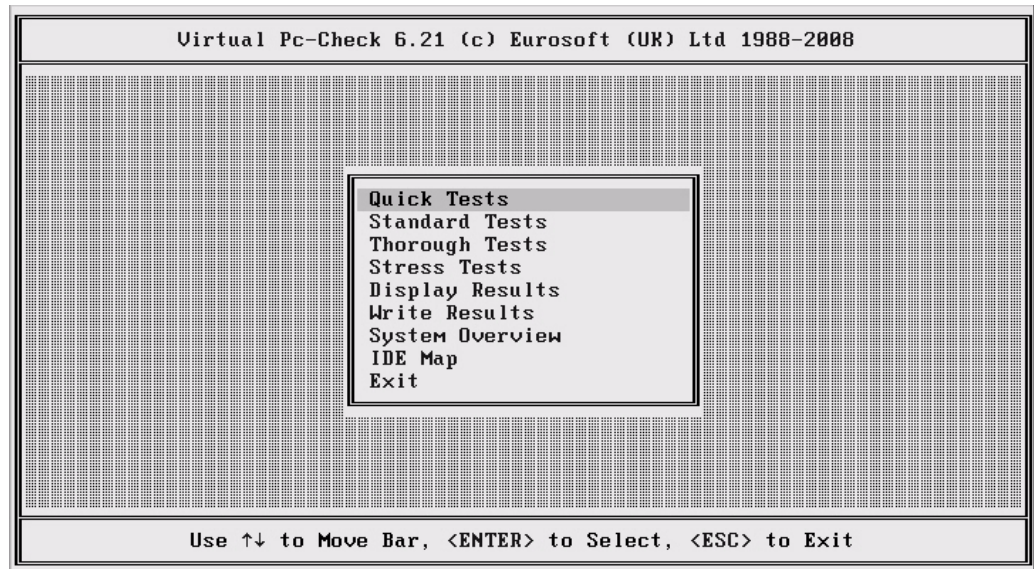
Start the Diagnostic Utility from Floppy Disk

To start the diagnostic utility from a floppy disk, load the diagnostic utility floppy disk into an external floppy disk drive and boot the computer.

The computer will boot from the diagnostic utility floppy disk. After approximately two minutes the main menu appears.

Use the Diagnostic Utility

After the diagnostic utility finishes booting, the main menu appears.



The main menu selections can be classified into four categories.

- Run a Test Set
- Examine Test Results
- PC Information
- Exit

Run a Test Set

The diagnostic utility comes with four test sets.

- Quick
- Standard
- Thorough
- Stress

Each set offers a different group of tests and runs for different periods of time.

TIP

Run times are approximate and vary significantly based on the amount of memory and hard drive space in a computer.

Quick

The quick test runs all processor and motherboard tests and runs some memory tests. The test takes approximately 5...30 minutes to complete. Once the test is started, no user input is required.

Standard

The standard test runs all processor, motherboard, and memory tests and runs some hard drive and video tests. The test takes about 1.5...3.5 hours to complete. You are required to supply input at the start of the test.

Thorough

The thorough test runs all processor, motherboard, memory, hard drive, and video. It takes approximately 2.5...10 hours complete. You are required to supply input at the start of the test.

Stress

The stress test is slightly different from other test sets. It runs tests on the processor, memory, CD-ROM, and hard drive simultaneously. The test runs for eight hours or until you stop them.

IMPORTANT

We highly recommended that you use 640 x 480 and 800 x 600 video resolutions for all video tests. Higher resolutions may cause the monitor to display incorrect results or go blank.

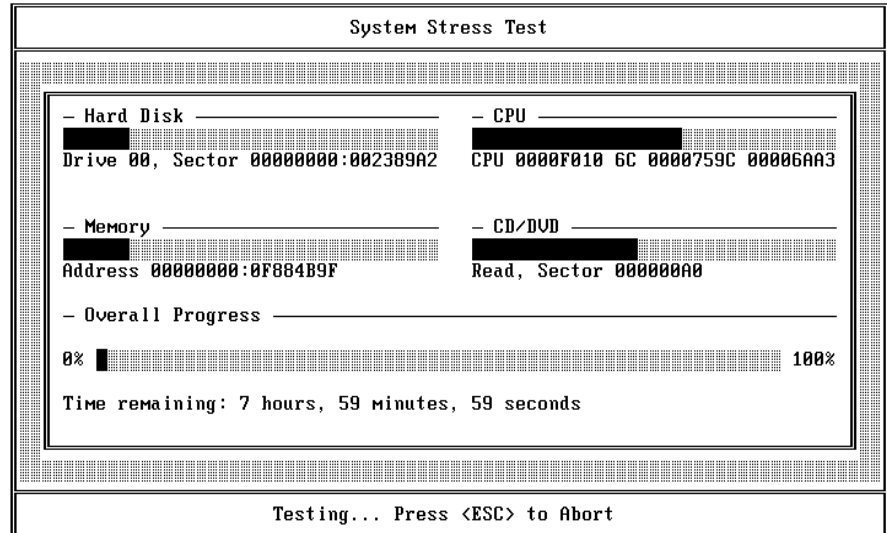
IMPORTANT

Solid-state hard drives may fail the hard drive Mechanics Stress Test portion of the Thorough test set. This failure is erroneous and can be disregarded. Solid-state hard drives do not use the same internal mechanics as standard hard drives.

To run a test set, use the arrow keys to select a test set from the main menu. Press Enter to start the test. A window opens and shows the result of each test under Tests Being Run.

Virtual PC-CHECK - Hardware Diagnostics			
Overall Elapsed Time:	00:00:27	Pass Number:	1
Current Test Elapsed Time:	00:00:06	Current Failures:	0
		Script File:	CUSTOM01.VBC
- Tests Being Run -			
Processor 1 Core		PASSED	
Processor 1 Coprocessor Core		PASSED	
Processor 1 Known Design Faults		PASSED	
Processor 1 MMX Extensions		Testing	
Use <Alt-S> to Swap between Panel and Tests in Progress			

The stress test window looks different than other tests. The exact amount of time remaining appears near the bottom of the window.



TIP

You can press Alt-S while a test set is running to see more details about the running test.

To stop running the test set, press the Esc key. You will be asked to confirm this. Only the tests that complete show results in the report.

If a test fails, the Current Failures line turns red and the test set continues to run until it is completed.

Once the test set is done, the diagnostic utility returns to the main menu.

Examine the Test Results

After one or more test sets run, you can examine the results from within the diagnostic utility or you can save the results as a text file. The text file can be used by technical support for further analysis.

Display the Test Results

Display Results provides a summary of test results. It shows each component test and its status. The status is passed, failed, or not run.

Virtual PC-CHECK - Results Summary					
		1	2	3	4
PROCESSOR	Core Processor Tests	PASSED			
	AMD64/EM64T Core Tests	Not Run			
	Maths Co-Processor Tests	PASSED			
	- Pentium Class FDIU	PASSED			
	- Pentium Class FIST	PASSED			
	MMX Operation	PASSED			
	3DNow! Operation	Absent			
	SSE Instruction Set	PASSED			
	SSE2 Instruction Set	PASSED			
	MP Symmetry	N/A			
MEMORY	Inversion Tree Test	PASSED			
	Progressive Inv. Test	PASSED			
	Chaotic Addressing Test	PASSED			
	Block Rotation Test	Not Run			
	Microtopology Test	Not Run			
	User Pattern Test	Not Run			

Use ↑ ↓ <PgUp> <PgDn> <ENTER> <Home> <End> to Scroll, <ESC> to Exit

Write Results Report

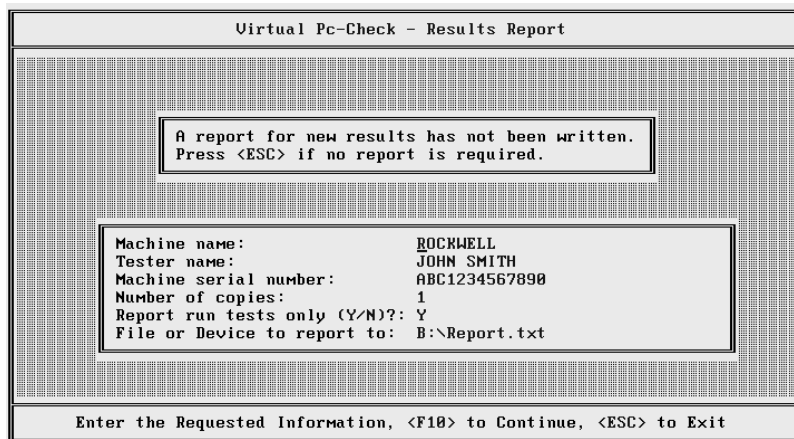
Use the Write Results Report to save test results to a floppy disk.

To save a report, you need a floppy disk with approximately 5 KB of free space. If you run the diagnostic utility from a floppy disk, you can save the report on the same disk.

Follow these steps to save a report.

1. Insert the floppy disk.
2. From the main menu, select Write Results Report.
3. Enter the computer machine name.
This name is for your reference only.
4. Enter the tester name.
This name is for your reference only.
5. Enter the machine serial number.
This number is for your reference only.
6. Set Copies to be Printed to 1.
7. Set Report Run Tests Only to Y.

8. Under 'File or Device to report to:', type the location where you want to save the report.
 - If the diagnostic utility is run from a CD, the location is B:\REPORT.TXT.
 - If the diagnostic utility is run from a floppy disk, the location is A:\REPORT.TXT.
9. Press F10 to save the report.



PC Information

The main menu provides options for displaying system information and an IDE map for your computer.

System Information

System Information provides core component details such as processor speed and type, RAM size, and drive descriptions. This information is included in the results report when it is written to a file.

IDE Map

IDE Map provides information about the IDE devices, for example, hard drives and CD-ROMs, attached to the industrial computer. Use this tool to determine if devices are working.

Exit the Diagnostic Utility

The Exit option exits the diagnostic utility and reboots the industrial computer. Before quitting, you are prompted to save the results report. Refer to the [Write Results Report](#) on page 10 for more information. You can skip this step by pressing the Escape key.

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://www.rockwellautomation.com/support/>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

Installation Assistance

If you experience an anomaly within the first 24 hours of installation, review the information that is contained in this manual.

You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html , or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

Allen-Bradley, Rockwell Software, Rockwell Automation, and TechConnect are trademarks of Rockwell Automation, Inc.

Trademarks not belonging to Rockwell Automation are property of their respective companies.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Publication 6000-TG001D-EN-P - December 2009

Supersedes Publication 6000-TG001C-EN-P - September 2008

Copyright © 2009 Rockwell Automation, Inc. All rights reserved. Printed in the U.S.A.