1. INTRODUCTION

RAMCHECK is the next generation memory tester from the company that pioneered the portable RAM testing industry. The RAMCHECK product line is based on a powerful stand-alone processor, up-to-date high speed circuitry and advanced FPGA devices to provide enhanced testing capabilities.

RAMCHECK and its adapters have been engineered to support today's 667MHz DDR2 memory devices as well as DDR1 and legacy SDRAM/EDO/FPM devices. Its built-in high speed test engine now makes the capabilities of expensive desktop testers more affordable.

The RAMCHECK line of products currently include the following systems:

- RAMCHECK DDR2/DDR1
- RAMCHECK DDR2
- RAMCHECK DDR1
- RAMCHECK (with 168-pin SDRAM socket)
- RAMCHECK base unit and various device adapters

RAMCHECK DDR2/DDR1 (see the cover page) is our most comprehensive configuration which includes the RAMCHECK base tester, plus the DDR2 and the DDR1 adapters. The DDR2 adapter supports testing of 240-pin PC2-3200, PC2-4300, PC2-5300/PC2-5400 and PC2-6400 DDR2 memory, including unbuffered and registered modules (ECC and non-ECC) that comply with JEDEC standards. It is also upward compatible with PC2-6400 DDR2 memory modules. The DDR1 adapter supports all popular 184-pin modules at 466/433/400/333/266/200Mhz.   A picture of the RAMCHECK DDR2/DDR1 is featured on the cover page of this manual.

The older RAMCHECK PLUS and the RAMCHECK DDR are our entry level systems which use our previous DDR 184-pin adapter working at 333/266/200MHz.

The RAMCHECK base unit can be ordered with a 168-pin test socket (p/n INN-8668SD168) that supports SDRAM and legacy EDO/FPM modules. SDRAM support includes coverage for PC166/150/133/100/66 DIMMs, registered and nonregistered modules.

Our rich offering of optional adapters supports DDR2 and DDR1 200-pin S.O. DIMMs, 144-pin SDRAM/EDO/FPM SO DIMMs, 100-pin S.O. DIMMs, individual DDR and SDRAM TSOP chips, as well as legacy 30-pin and 72-pin SIMM modules. (See Section 7).

Using our revised proprietary algorithms, RAMCHECK performs a thorough test on your memory module.   All cells are tested simultaneously, using the Page Burst feature where possible in order to

yield a faster test, and to give it the capability of detecting errors that are caused by interference among the chips on the tested device. RAMCHECK is not merely a go/no-go tester. The menus provided give clear indications of faulty bits within a module, as well as give other important repair related information.

RAMCHECK's user-friendly interface makes it easy to be used by anyone, including non-technical personnel. Its test procedure is fully automatic, and its graphic LCD display shows clear instructions and test results. The special test sockets we use on RAMCHECK and its adapters allow easy insertion and removal of the modules. More advanced users can control the test flow and parameters using the change-on-the-fly and the advanced Setup features.
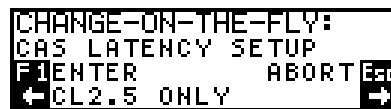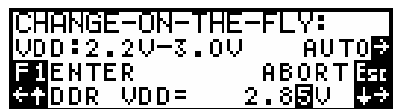
Pressing one button activates the Basic Test, which automatically measures and displays the module size, mode type, fastest functional frequency rate (or fastest RAS access time in nanoseconds for EDO/FPM memory), and more. The BASIC test concludes with detailed structure information.
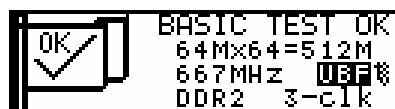
You have the option to terminate the procedure at this point, as this test is sufficient for most testing needs, however, if you decide to test the module more rigorously, you may elect to continue to the next phase.

The EXTENSIVE test follows the BASIC TEST with varying conditions of the main voltage supplied to the memory device (called Voltage Cycling and Voltage Bounce tests), all the while having memory performance monitored. The March Up/Down continues to exercise the module by using an algorithm to determine adjacent cell interference. Following is a set of Data Retention tests to provide you with information concerning the quality of the tested module. Our proprietary Chip-Heat Mode continues the test by automatically warming the module to test for temperature related problems, which may come in the form of speed degradation or memory failure. Such problems are reported at the conclusion of the EXTENSIVE TEST.

The AUTO-LOOP test provides an excellent means for module burn in and continual pattern testing. This test will continue indefinitely until stopped by the user, or the module exhibits a memory failure.

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┌──────────────────────────┐   ┌──────────────────────────┐
│SETUP PARAMETERS          │   │SETUP SPEED:              │
│ODT/RTT SETUP             │   │@433MHz                   │
│█ENTER        ABORT▓░     │   │█ENTER        ABORT▓░     │
│◄Rtt=75 OHM            ➡  │   │◄466MHz                ➡  │
└──────────────────────────┘   └──────────────────────────┘
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RAMCHECK has been equipped with advanced setup capabilities to satisfy the needs of even the most demanding engineers. Major timing parameters can be accessed through a graphic interface, the standard test flow can be customized, or you may choose to edit the patterns used throughout the test.

RAMCHECK comes with a PC Communications program that allows you to upgrade its stand-alone firmware, log and print test reports, and support SPD editing and programming. To protect your investment and ensure the RAMCHECK provides you with the most recent features, please download our regularly updated firmware every few months.

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┌──────────────────────────┐
│      ┌─────────────┐     │
│  👤  │  DEMO MODE  │     │
│      └─────────────┘     │
└──────────────────────────┘
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Throughout the remainder of this manual, any reference to RAMCHECK also refers to RAMCHECK DDR2 and DDR1 testers.

To make sure that you become familiar with the capabilities of your RAMCHECK tester, we have included an easy to use DEMO program that explains its operation and numerous features. We recommend that you read this manual in order to gain the most from your new RAMCHECK.

Please visit our web site at www.innoventions.com for the latest manual updates, including addendums for newly released products, firmware revisions, and revised technical documentation.

Thank you for purchasing RAMCHECK. We are confident that you will find RAMCHECK to be an indispensable tool.