New DDR3 1600 Mhz

SP3000 DDR3 DIMM Tester

DDR3 1600

CST Inc, leading worldwide manufacturer of memory tester and automation is proud to introduce the most affordable, high performance and stand alone DDR3 Memory DIMM Tester. The SP3000 tester is specially designed for high volume memory distributors, memory module manufacturers, dealers and service depots.

The SP3000 DDR3 Tester comes with a standard 240pin DIMM socket for testing the latest 1600, 1333, 1066 MHz DDR3 memory modules at **"Real Bus Speed ~ 1600Mhz"** and **"Real Cycle Time Testing".**

The SP3000 DDR3 DIMM Tester is built with flexible architecture to support DRAM, SDRAM, DDR & DDR2 Memory Module testing with a change of optional adapter.

SP3000 DDR3 Feature

Auto Identify:
- **Memory Type: 240pin DIMM Unbuffered and Registered DIMM**
- Memory Configuration
- Memory Size
- Memory Frequency
- ECC or Non-ECC

Real Bus Speed Testing
- **Real Cycle Time and At-Speed Testing (True 1600Mhz Frequency)**
- Uses state-of-the-art DDR3 controller
- **Super Fast Detail Test time(4GB in 20secs)**

Effective Test Algorithm
- Automatic Read/ Write Leveling & ZQ Calibration
- Quick test, checks for assembly faults
- Detail March test, checks for functional failures
- Programming and check SPD
- **Fault Focusing – pinpoints to faulty chip(s)**

Ease of Use
- Easy to read LCD display
- 5 Easy Push Button Selection
- Output bad results to printer
- Audible buzzer for pass/fail indication
- Colored LED for Test, Pass and Fail status

Ez Upgrading
- Firmware upgradeable
- Support wide range of test adapters
- Support RoboFlex2 & RoboFlex3 Handler
- Interface with PC software via RS232 Port

Technical Specification

Clock Frequency	: 400,533,666,800 MHz selectable
Data-rate	: 800 ,1066 ,1333 & 1600 Mhz
Address depth	: 4 Giga-word (16 Row x 12 Col)
Data width	: Up to 72 bit
No of Ranks	: 1,2 and 4 Rank
Voltage range	: 1.35, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9 & 2.0
CAS Read Latency	: 5, 6, 7,8,9,10 & 11 Clocks
Trcd & Trp Adjustment	: 5, 6, 7 ,8,9,10 & 11 Clocks
Cas Write Latency	: 5, 6, 7, 8, 9 & 10 Clocks
Internal bank	: 8 Banks
Burst Chop Mode	: Fixed BL8, BL4 & On the Fly
Dynamic ODT selection	: 40, 60 & 120 ohm (Auto Select)
ZQ adjustment	: Auto Calibration
Refresh Cycle	: Auto / Self Refresh
Static Test Pattern	: Walk Data , Walk Address , DQS, DQM, CKE, CS, CKE Test
Dynamic Test Pattern	: Mat-S, March-C, March-X, March Y and Moving Inversion
SPD Programming	: Read/Write & Editable Byte 0 – 255 Reversible SPD Write Protect

General Specification

DDR3 Test Adapter	: 240 Pin DDR3 DIMM (Standard) 204 Pin SODIMM Converters
Power Adapter	: input 100 /250 Vac, 50 /60Hz Output 12 VDC @ 3A
Operating Temperature	: 15 ~110 Degree F
Dimension	: 9.25" x 9.25" x 2"
Weight	: 6 pounds

SIMMTESTER.COM

CST Inc , 2336 Lu Field Road , Dallas Texas 75229 Tel : (972) 241-2662 Fax : (972) 241-2661

www.simmtester.com   Email : info@simmtester.com

The SP3000 DDR3 Memory Tester

The CST SP3000 DDR3 1700Mhz Adapter is the latest test adapter for the SP3000. It supports testing of 240-pin PC3-6400, PC3-8500, PC3-10600, and PC3-12800 DDR3 memory, including unbuffered (UDIMM) and registered modules (RDIMM), both ECC and non-ECC, that comply with JEDEC standards.

The SP3000 DDR3 adapter plugs into the existing SP3000 base tester. This makes the DDR3 adapter by far the most cost-effective solution for testing high-speed DDR3 modules.
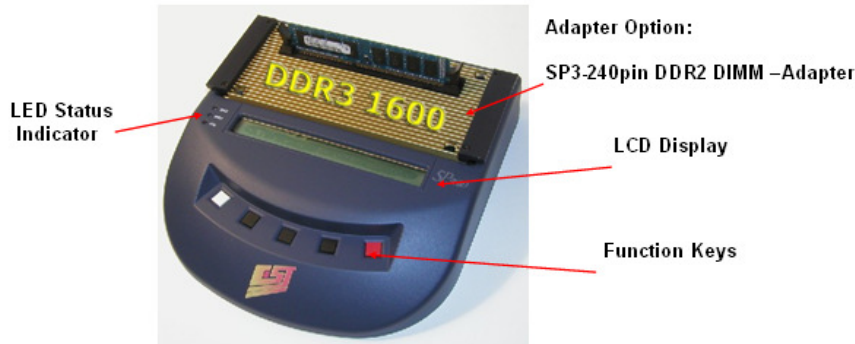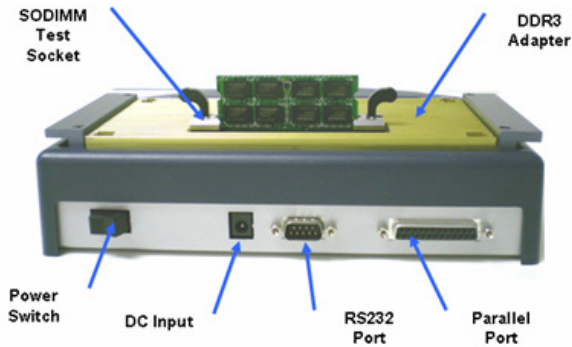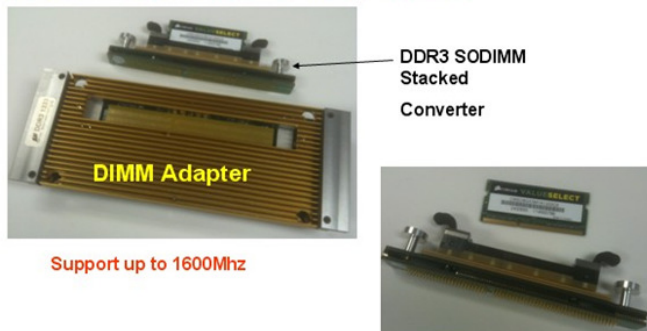

DDR3 1600 MHz DIMM Adapter with a 204pin Stacked Convertor

Converts : DDR3 240pin DIMM tester to 204pin SODIMM Adapter

No special setup is required. As with all of CST products, the adapter is simple to use. Insert the DDR3 adapter, turn the SP3000 tester on, insert a DDR3 DIMM module into the heavy duty Yamaichi test socket, then press the start button to begin testing.

CST has incorporated latest state-of-the-art technology **"Memory Controller"** in the design of the new SP3000 DDR3 1600Mhz DDR3 Adapter.
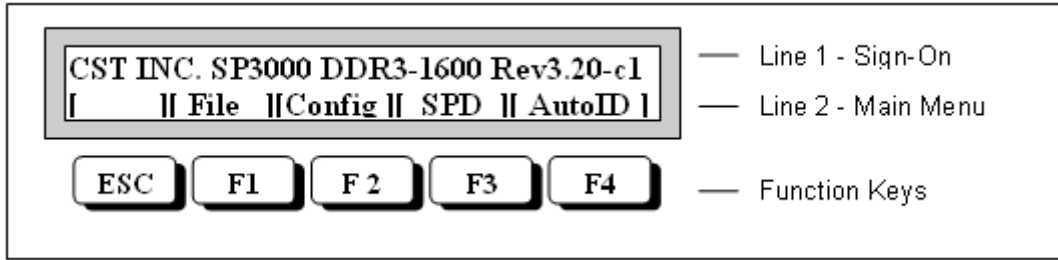
DDR3 Advanced Technology

- Main Adapter DDR3 controller featuring improved 1600MHz test engine.

- High efficiency switching power regulator to generate the DDR3 STTL-15 interface power source.

- Build in analog circuit for measuring the module's current, voltages and the board's temperature.

- User Programmable controlled Vtt regulator.

- 400-1700 MHz DDR3 clock generator.

- High resolution VDD high efficiency switching power regulator.

The SP3000 DDR3 1700Mhz adapter includes many new features which are relevant to the differences between DDR3 technology and the older DDR2 and DDR technology. As with all of CST SP3000 testers, each DIMM module's size, structure, and type are automatically detected, without the need for user's setup. The test flow follows our standard Basic Test, Extensive Test, and Auto-Loop process. The SP3000 DDR3 adapter is very simple to operate, with little training or setup required.

DDR3 Test Features

- Supports Burst Length of 4 & 8

- Supports CAS LATENCY (CL) in the range of 5,6,7,8,9,10 & 11.

- Trcd & Trp is supported in the range of 5,6,7,8,9,10 and 11.

- Support On-Die-Termination (ODT)

- DDR3 Data rates: 800,1066,1333,1600 MHz Test engine. Higher speed DDR3 modules such as 1866 MHz ,2 GHz can still be tested at a lower frequency.

- Supports new DDR3 reset function and the mode registers enhancements.

- Improved current and temperature sensing circuitry.

- True 1.5V testing with a wide support range of 1.35V to 2.0V

- Parallel testing capability of 64/72-bits.

- Heavy Duty , 240-pin test-quality for convenient module handling.

- Automatic detection and support for Registered/Unbuffered DIMM modules.

- Automatic detects x4 or x8 chip type

- Support up to 16 rows and 12 column address lines to support 32 GB modules.

- Complete SPD programming support.

- Option 204-pin SODIMM Stacked converter modules available.

BASIC Operation

```
CST INC. SP3000 DDR3-1600 Rev3.20-c1      ── Line 1 - Sign-On
[        ][ File  ][Config ][ SPD  ][ AutoID ]   ── Line 2 - Main Menu

ESC     F1      F 2      F3      F4     ── Function Keys
```

Auto ID Memory Module

The automatic identifying (Auto-ID) device functions, allow user to determine the configuration, size, speed…… etc of the unknown module under test. The following parameters will be determined:

- Device Operating Voltage – VDD: 1.5V
- Rows configuration
- Columns configuration
- Number of data lines
- Number of banks (Internal & external)

From the main menu, once the Auto I.D function is activated, the Module Type menu and the Clock Frequency menu will display allowing User to select the desired Data-Rate Frequency of 800,1066,1333,1600 MHz to test the module. The tester will sense if the EEPROM has SPD data written, this menu selection will appear.

```
Select Data-Rate:
              [  800] [1066] [1333] [1600]
```
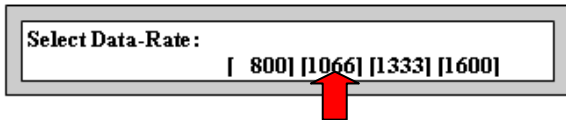
Once the 1066 MHz Data-rate frequency is selected, it takes about 3 –6 seconds to identify the DIMM module depending on device type and configuration.
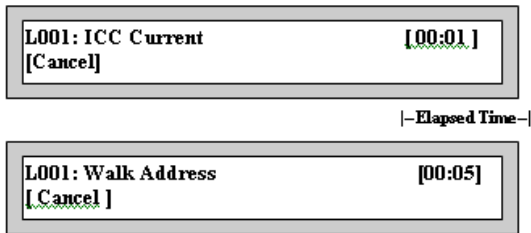
```
Identifying the Device ………..           [00:03]
```
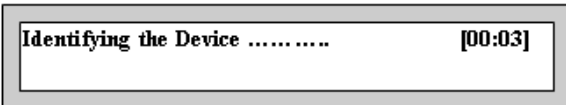
If a known good module is detected, the SP3000 LCD will display the following parameters

```
DDR3 64M x 64 512 MB 1B (8)@2x533Mhz   1.5V
[ Esc. ] [  Edit  ] [        ] [Defset] [Test]
```
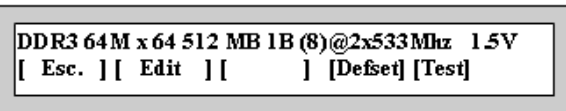
Test Menu

This menu is assigned as the Auto-ID or File Menu. When the user presses the **[Test]** Key, the *SP3000* will perform an ICC current measurement check before starting test and the display message will be as follows.

```
L001: ICC Current          [00:01 ]
[Cancel]
```

                                    |–Elapsed Time–|

```
L001: Walk Address          [00:05]
[ Cancel ]
```

If no modules are present on the SP3000 Test socket, the tester will prompt a failure message on the display screen and it is as follows.

```
** Fail: wk_addr @ 2 x 533 MHz, L1 **   [00:01]
[  Esc   ] [       ] [       ] [       ] [  Test   ]
```
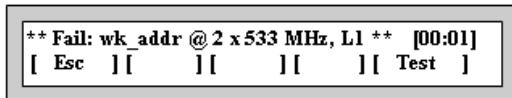
During the testing, any errors detected during testing will be aborted immediately and the *FAIL* message will be displayed. Otherwise if no errors are detected, upon completion of the defined tests, a *PASS* message will be displayed.

Test Result Menu

After completing all the defined tests with no errors detected, the LCD will display as follow:

```
** PASS ** @ 2x533 MHz L001 *      [00:08]
[Esc   ] [Result] [Print] [View] [   Test   ]
```
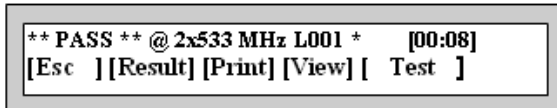

How to decode a DDR3 Memory failure test results using the SP3000.

The SP3000 DDR3 tester is designed with an advanced "Fault-capturing" algorithm, capable of pinpointing the exact failure components. There are many types of faults which could possibly surface during module assembly.

For DDR3 Memory Standard Pin Description

- Address Pin (A0- A12) open and short
- Bank Select Address (BA0 – BA1) open and short
- Data Input/output (DQ0 – DQ63) open and short
- Data Strobe Input/output (DQS 0 – DQS 8) open and short
- Clock enable input (CKE0, CKE1) open and short
- Chip select input (CS0,CS1,CS2,CS3) open and short
- Row address Strobe (RAS)open and short
- Column address Strobe (CAS) open and short
- Write enable (WE) open and short
- On-Die-Termination (ODT)
- Check Bit (ECC for 72 bit DIMM ~ CB0 – CB7) open and short
- Data Mask (DM0-7)
- Power Supply (1.5V) VDD
- Power Supply for DQS (1.5V)
- Ground – VSS
- Power Supply Reference (Vref)
- Serial EEPROM Power Supply (2.3V – 3.6V) VddSPD
- SPD Serial Data I/O (SDA)
- SPD Serial Clock (SCL)
- SPD Address in EEPROM (SA0-2)
- No connection (NC)

 For ordering:
 SP3000 DDR3 1600Mhz DIMM Tester set: SP3-DDR3-1600
 SP3000 DDR3 1600Mhz SODIM Tester set: S3P-DDR3-1600S