
Appendix B6

Manufacturing Test

MANUFACTURING TEST

1. MANUFACTURING TEST PROGRAM

The manufacturing test program (MFGTST.EXE) verifies the various modes and functions for the correct operation of the CL-GD546X. Primary features include: write/read/compare tests of all video register groups, write/read/compare tests of all video RAM, display patterns for visual verification of all primary video modes, and 2D/3D drawing engine verification. Also included is a complete set of miscellaneous video tests designed to verify proper operation of the CL-GD546X. All RAM and register tests are self-checking to the extent that values are read and compared to expected values. When a difference is detected, an error message is generated and a complete test report is available at the end of a test session.

1.1 Operating Instructions

MFGTST.EXE detects device type and automatically configures itself to run all valid tests for the CL-GD546X video device that is installed in the system. In cases where a particular test is device-specific, the program senses and records it.

MFGTST.EXE is easy to install and operate. The [Tab] key allows the user to jump between the three different windows on the MFGTST display: Test Groups, Test Cases, and Test Log. The arrow keys highlight the users selections and controls the cursor within the MFGTST windows.

To obtain additional help concerning a function in MFGTST.EXE, press the [F1] key. Help in the MFGTST dialog boxes is available by tabbing to the Help option and pressing [Enter].

To exit to the DOS prompt, simultaneously press the [Alt] and [X] keys or tab to the diamond in the upper-left-hand corner of the MFGTST display and press [Enter].

When a triangle is displayed in the lower-right-hand corner of the Test Cases window, there are more listed test cases for a specific group. Use the arrow keys to move to the last test case name. To view the remainder of the tests listed, continue using the down arrow key.

1.2 Installing and Starting MFGTST.EXE

To start and install the MFGTST.EXE, follow the procedures below:

- 1) Run the INSTALL.EXE program.
- 2) To create a custom initialization file (MFGTST.INI) when first starting MFGTST.EXE, refer to [Section 1.2.1](#). This provides the correct command line extensions and cancels the next two steps.
- 3) To start MFGTST.EXE, at the MFGTEST directory type
mfgtst
and press [ENTER].
Note that to redirect MFGTEST to a serial terminal setup for ANSI/VT100 emulation, type
mfgtst /com:1:19200:n:8:1
This sets MFGTST.EXE to load and direct output to COM1 at 19200 baud, no parity, 8 data bits, and 1 stop bit.

- 4) A dialog box inquires whether to “Save the Program Configuration (MFGTST.INI)?” To create the initialization file, MFGTST.INI, choose OK. If an initialization file is unnecessary, choose Cancel. To customize your .INI file, simultaneously press [Alt] and [X] and go back to the DOS prompt. Then reference [Section 1.2.1](#) to obtain the correct command line extensions for customization.

For effective and efficient use of MFGTST.EXE, read [Section 1.3](#) before running any tests.

1.2.1 Command Line Options

MFGTST.EXE creates an initialization file (MFGTST.INI). Add command line options to customize or change the initialization file. Use the following procedure to have MFGTST.EXE custom-build an .INI file

- 1) To create or change the MFGTST.INI when starting the MFGTST program, at the MFGTEST directory, type
- ```
mfgtst command
```
- where command is a command line option selected from [Table B6-1](#).  
For example, to run in quiet mode, type

```
mfgtst /q
```

at the MFGTST directory.

**Table B6-1. MFGTST.EXE Command Line Options**

| Command  | Function                                                                   |
|----------|----------------------------------------------------------------------------|
| /v       | Verbose mode                                                               |
| /a       | OEM auto                                                                   |
| /c       | Continue                                                                   |
| /f       | Log file                                                                   |
| /m       | OEM Menu mode                                                              |
| /q       | Quiet mode                                                                 |
| /e       | Engineering mode                                                           |
| /vga     | Output to VGA device.                                                      |
| /mda     | Output to MDA (monochrome) adapter.                                        |
| /com     | Output to COM port. This one has several parameters.                       |
| /tl:<n>  | Set number of output terminal lines to <n>. The default is 25 lines.       |
| /ll:<n>  | Set number of log window (menu mode) lines to <n>. The default is 6 lines. |
| /fu:<fl> | Set User Configuration File to <fl> and read in at start-up.               |

- 2) MFGTST.EXE prompts a dialog box to save the program configuration. Press OK to have MFGTST.EXE automatically create the new MFGTST.INI file.

The MFGTEST.INI dialog box is always available to create a new initialization file. This is achieved by simultaneously pressing [Alt] and [F] and then pressing [S] to save the current configuration. The command line options for loading MFGTST.EXE are saved in the .INI file. All command line options override the corresponding settings in the initialization file (MFGTST.INI).

### 1.3 Using the MFGTEST Program

To run a single test in a Test Group once, tab the cursor to the Test Cases window and use the arrow keys to scroll up and down the list. When the selection to run the test is made, press [Enter]. A 'p:' in front of the Test Group name signifies that the test has passed. An 'F!' in front of the Test Group name signifies that the test has failed. A 'c!' in front of the Test Group name indicates the test did not run.

To select or deselect several test groups and test cases, press the space bar. A symbol appears to the left of the selected groups and cases. Tab between the Test Groups and Test Cases and use the arrow keys to scroll up and down the list. Simultaneously pressing [Alt] and [M] marks all tests in a group that will run (symbols appear next to all marked tests). To unmark all tests in a group, simultaneously press [Alt] and [U].

To run several test cases for a test group, mark the appropriate tests and tab the cursor to the Test Groups window. Press [Enter] on the name of the test group. All selected tests in that group are then run.

To run all selected test cases in all marked test groups, press [Alt] and [R].

#### 1.3.1 Using the Special Keystrokes

To easily navigate around the three windows in the MFGTEST display, refer to table [Table B6-2](#). Keystrokes marked with an asterisk (\*) in the Description column prompts additional text windows as described in [Table B6-2](#).

**Table B6-2. MFGTST.EXE Keystrokes**

| Keystroke | Description                      |
|-----------|----------------------------------|
| F1        | Help *                           |
| F2        | Run test controls dialog box *   |
| Alt + F   | File operations *                |
| Alt + R   | Run all marked tests             |
| Alt + X   | Exit program                     |
| Alt + V   | Video modes dialog               |
| Alt + M   | Mark all test cases in a group   |
| Alt + U   | Unmark all test cases in a group |

#### ***Using the [F1] Keystroke***

When you press [F1], the Help Topic dialog box appears displaying the following options:

- (A)bout
- (K)eystrokes
- (T)est: ...
- (R)esults:...

To get to the option text box, either tab to the option and press [Enter], or press the highlighted letter of the option. The '(A)bout' option displays the Cirrus Logic copyright and version information for MFGTST.EXE. The '(K)eystrokes' option displays the keystroke information found in [Table B6-2](#). The '(T)est:..' option is available depending on the test currently highlighted. When it is available, it provides additional information about that test. The '(R)esults:..' option is available depending on the test currently highlighted. When it is available, it provides additional information about the results of that test.

### ***Using the [F2] Keystroke***

Press [F2] to bring up a dialog box of test control options to control looping through various tests. Note, not all test controls are fully implemented. To implement the test controls, click on or tab to one of the following options and press [Enter].

- [Options for Run All Marked Tests]
- [General Options for Run Each Test]
- [Specific Options for Run Each Test]
- [Run All Marked Tests]

[Options for Run All Marked Tests] controls duration and the amount of loop times in the tests. [General Options for Run Each Test] controls the duration for repeating the test and for what video modes and random speed. [Specific Options for Run Each Test] cannot be selected as it is not yet implemented. [Run All Marked Tests] runs all selected tests in all selected groups.

### ***Using the [Alt]+[F] Keystrokes***

After simultaneously pressing the [Alt] + [F] keys, the File Operations menu appears and displays the following options:

- (S)ave Configuration
- (U)ser File...
- (L)og File...
- E(x)it Program

To use the above options, tab to the option and press [Enter] or press the highlighted letter of the option. '(S)ave Configuration' saves a new MFGTST.INI file with the current options. If no MFGTST.INI file is found, this option automatically pops up at boot-up. '(U)ser File' prompts a dialog box that allows loading and saving the User Options File by file name. '(U)ser Options Files' currently acknowledges the selected tests and groups and provides additional information about running tests/options. '(L)og File' prompts a dialog box to create log files. Press the Log File Help button for additional information. 'E(x)it Program' quits MFGTST.EXE.

## 1.4 Listing the Manufacturing Tests

This section lists and gives a brief description of the manufacturing tests and test groups for the CL-GD546X family of VisualMedia accelerators. If no initialization file (MFGTST.INI) exists and you are running in Menu mode, the MFGTST.EXE utility creates a default.

The following is a list of all tests that can currently be run with MFGTST.EXE.

|                   |                 |
|-------------------|-----------------|
| BLTMFG.bltx102416 | Mem.obwr16      |
| BLTMFG.bltx64024  | Mem.wr16        |
| BLTMFG.bltx80016  | Mem.wr8         |
| HOST_1OP.HOST_1OP | Mem.obi321      |
| KRETCH.KRETCH     | Mem.obi322      |
| O2STPMPM.O2STPMPM | Mem.obi323      |
| O2STSCMP.O2STSCMP | Mem.i32         |
| O3STSCMP.O3STSCMP | Mem.obi16       |
| O3STSCPM.O3STSCPM | Mem.i16         |
| OFSTPCPM.OFSTPCPM | Mem.i8          |
| OFSTSMPM.OFSTSMPM | Mem.obd321      |
| OFSTSPMM.OFSTSPMM | Mem.obd322      |
| ROP256.ROP256     | Mem.obd323      |
| SIL82_5.SIL82_5   | Mem.d32         |
| SR42120.SR42120   | Mem.obd16       |
| SRAMTST.SRAMTST   | Mem.d16         |
| SSMFG.SS_16BPP    | Mem.d8          |
| SSMFG.SS_CLUT8    | Mem.fast8i      |
| SSMFG.SS_YUV42    | Mem.fast16i     |
| VidMode.Mode0x5c  | Mem.fast32i     |
| VidMode.Mode0x5e  | Mem.fast8d      |
| VidMode.Mode0x5f  | Mem.fast16d     |
| VidMode.Mode0x60  | Mem.fast32d     |
| VidMode.Mode0x64  | Mem.walk08      |
| VidMode.Mode0x65  | Mem.walk18      |
| VidMode.Mode0x6d  | Mem.addtest     |
| VidMode.Mode0x71  | Pulse           |
| VidMode.Mode0x72  | Ramdac18.Rdfast |
| VidMode.Mode0x73  | Ramdac18.Rdwr   |
| VidMode.Mode0x74  | Ramdac18.Rdi    |
| VidMode.Mode0x75  | Ramdac18.Rdd    |
| VidMode.Mode0x76  | Ramdac18.Rdc13  |
| VidMode.Mode0x78  | Ramdac18.Rdc5C  |
| VidMode.Mode0x79  | Ramdac18.Rdc5F  |
| VidMode.Mode0x7a  | Ramdac18.Rdc60  |
| ModelInfo         | Ramdac24.Rdfast |
| Modes             | Ramdac24.Rdwr   |
| Mem.obwr321       | Ramdac24.Rdi    |
| Mem.obwr322       | Ramdac24.Rdd    |
| Mem.obwr323       | Ramdac24.Rdc13  |
| Mem.wr32          | Ramdac24.Rdc5C  |

Ramdac24.Rdc5F  
Ramdac24.Rdc60  
WriteMode.wm2rm1  
DisplayTest.vgacc  
DisplayTest.cbars  
Siggen.Mode5FR  
Siggen.Mode64R  
Siggen.Mode71R  
Siggen.Mode76R  
Siggen.Mode5Fw8R  
Siggen.Mode5F  
Siggen.Mode64  
Siggen.Mode71  
Siggen.Mode76  
Siggen.Mode5Fw8  
LinTest0.LinTest1  
LinTest0.LinTest2  
LinTest0.LinTest3  
LinTest0.LinTest4  
LinTest0.LinTest5  
LinTest0.LinTest6  
LinTest0.LinTest7  
LinTest0.LinTest8  
LinTest0.LinTest9  
LinTest0.LinTest10  
LinTest0.LinTest11  
LinTest0.LinTest12  
LinTest0.LinTest13  
LinTest0.LinTest14  
LinTest0.LinTest15  
LinTest0.LinTest16  
LinTest0.LinTest17  
LinTest0.LinTest18  
LinTest0.LinTest19  
LinTest0.LinTest20  
LinTest0.LinTest21  
LinTest0.LinTest22  
LinTest0.LinTest23  
LinTest0.LinTest24  
LinTest0.LinTest25  
LinTest0.LinTest26  
LinTest0.LinTest27  
LinTest0.LinTest28  
LinTest0.LinTest29  
LinTest0.LinTest30  
LinTest0.LinTest31  
LinTest0.LinTest32  
LinTest0.LinTest33  
LinTest0.LinTest34

LinTest0.LinTest35  
LinTest0.LinTest36  
LinTest0.LinTest37  
LinTest0.LinTest38  
LinTest0.LinTest39  
LinTest0.LinTest40  
LinTest0.LinTest41  
LinTest0.LinTest42  
LinTest0.LinTest43  
LinTest0.LinTest44  
LinTest0.LinTest45  
LinTest0.LinTest46  
LinTest0.LinTest47  
LinTest0.LinTest48  
LinTest0.LinTest49  
LinTest0.LinTest50  
LinTest0.LinTest51  
LinTest0.LinTest52  
LinTest0.LinTest53  
LinTest0.LinTest54  
LinTest0.LinTest55  
LinTest0.LinTest56  
LinTest0.LinTest57  
LinTest0.LinTest58  
LinTest0.LinTest59  
LinTest0.LinTest60  
LinTest0.LinTest61  
LinTest0.LinTest62  
LinTest0.LinTest63  
LinTest0.LinTest64  
LinTest0.LinTest65  
LinTest0.LinTest66  
LinTest0.LinTest67  
LinTest0.LinTest68  
LinTest0.LinTest69  
LinTest0.LinTest70  
LinTest0.LinTest71  
LinTest0.LinTest72  
LinTest0.LinTest73  
LinTest0.LinTest74  
LinTest0.LinTest75  
LinTest0.LinTest76  
LinTest0.LinTest77  
LinTest0.LinTest78  
LinTest0.LinTest79  
LinTest0.LinTest80  
LinTest0.LinTest81  
LinTest0.LinTest82  
LinTest0.LinTest83

LinTest0.LinTest84  
LinTest0.LinTest85  
LinTest0.LinTest86  
LinTest0.LinTest87  
LinTest0.LinTest88  
LinTest0.LinTest89  
LinTest0.LinTest90  
LinTest0.LinTest91  
LinTest0.LinTest92

LinTest0.LinTest93  
LinTest0.LinTest94  
LinTest0.LinTest95  
LinTest0.LinTest96  
LinTest0.LinTest97  
LinTest0.LinTest98  
LinTest0.LinTest99  
LinTest0.LinTest100

#### 1.4.1 Manufacturing Test Groups

The manufacturing tests listed in the previous section can be divided into eight categories. These tests can vary. Refer to the CL-GD546X BIOS and Utilities Release Kit for up-to-date information.

- Blitter tests
- Display tests
- Memory tests
- RAMDAC tests
- Linear memory tests
- BIOS tests
- 2D Tests
- 3D Tests

### 1.4.1.1 Blitter Tests

In these tests the BitBLT engine renders to the screen. The resulting screen is CRC'ed to verify correctness.

**Table B6-3. Blitter Tests**

| Test Name         | Description                                     |
|-------------------|-------------------------------------------------|
| BLTMFG.bltx102416 | BitBLT ext testing at 1024 × 16 bpp             |
| BLTMFG.bltx64024  | BitBLT ext testing at 640 × 24 bpp              |
| BLTMFG.bltx80016  | BitBLT ext testing at 800 × 16 bpp              |
| HOST_10P.HOST_10P | Test host supplied data                         |
| KRETCH.KRETCH     | Stretch tests                                   |
| O2STPMPM.O2STPMPM | 2 OP OP1 monochrome OP2 monochrome pattern test |
| O2STSCMP.O2STSCMP | 2 OP monochrome pattern test                    |
| O3STSCMP.O3STSCMP | 3 OP monochrome pattern test                    |
| O3STSCPM.O3STSCPM | 3 OP OP1 color OP2 monochrome                   |
| OFSTPCPM.OFSTPCPM | Color pattern                                   |
| OFSTSMPM.OFSTSMPM | Monochrome pattern                              |
| OFSTSPMM.OFSTSPMM | Color/monochrome pattern test                   |
| ROP256.ROP256     | 256 ROP test                                    |
| SIL82_5.SIL82_5   | Simple stretch test                             |
| SR42120.SR42120   | Complicated stretch test                        |
| SRAMTST.SRAMTST   | BitBLT SRAM tests                               |
| SSMFG.SS_16BPP    | Stretch test at 16 bpp                          |
| SSMFG.SS_CLUT8    | Stretch test at 8 bpp                           |
| SSMFG.SS_YUV42    | Stretch test at 422                             |

### 1.4.1.2 Display Tests

The display tests listed in [Table B6-4](#) produce a test pattern that is specified by the mode. The test patterns visually verify that the pins are correctly connected to the VGA connector. Note that the last two digits of each test is the mode number for that test.

**Table B6-4. Display Pattern Tests**

| Test Name         | Description                   |
|-------------------|-------------------------------|
| DisplayTest.vgacc | Test screens in limited modes |
| DisplayTest.cbars | Color bars in packed pixel    |
| VidMode.Mode0x5c  | Test pattern in mode 5c       |
| VidMode.Mode0x5e  | Test pattern in mode 5e       |
| VidMode.Mode0x5f  | Test pattern in mode 5f       |
| VidMode.Mode0x60  | Test pattern in mode 60       |
| VidMode.Mode0x64  | Test pattern in mode 64       |
| VidMode.Mode0x65  | Test pattern in mode 65       |
| VidMode.Mode0x6d  | Test pattern in mode 6d       |
| VidMode.Mode0x71  | Test pattern in mode 71       |
| VidMode.Mode0x72  | Test pattern in mode 72       |
| VidMode.Mode0x73  | Test pattern in mode 73       |
| VidMode.Mode0x74  | Test pattern in mode 74       |
| VidMode.Mode0x75  | Test pattern in mode 75       |
| VidMode.Mode0x76  | Test pattern in mode 76       |
| VidMode.Mode0x78  | Test pattern in mode 78       |
| VidMode.Mode0x79  | Test pattern in mode 79       |
| VidMode.Mode0x7a  | Test pattern in mode 7a       |

The manufacturing tests listed in [Table B6-5](#) verify the functionality of the display path.

**Table B6-5. Display Path Tests**

| Test Name                | Description                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Signature Generator Test | Checks the display pipe line for 6-bit DAC, 8-bit DAC, 16 bpp, 24 bpp, and 32 bpp with pseudo random data and known data. |
| Siggen.Mode5FR           | Mode 5f with random data                                                                                                  |
| Siggen.Mode64R           | Mode 64 with random data                                                                                                  |
| Siggen.Mode71R           | Mode 71 with random data                                                                                                  |
| Siggen.Mode76R           | Mode 76 with random data                                                                                                  |
| Siggen.Mode5Fw8R         | Mode 5f with 8-bit DAC random data                                                                                        |
| Siggen.Mode5F            | Mode 5f with known data                                                                                                   |
| Siggen.Mode64            | Mode 64 with known data                                                                                                   |
| Siggen.Mode71            | Mode 71 with known data                                                                                                   |
| Siggen.Mode76            | Mode 76 with known data                                                                                                   |
| Siggen.Mode5Fw8          | Mode 5f with 8-bit DAC and known data                                                                                     |

### 1.4.1.3 Memory Tests

The tests listed in [Table B6-6](#) are VGA memory and pattern tests.

**Table B6-6. VGA Memory Tests**

| Test Name               | Description                                                                                  |
|-------------------------|----------------------------------------------------------------------------------------------|
| <b>VGA Memory Tests</b> |                                                                                              |
| Mem.obwr321             | Test video memory to non-aligned boundaries (first byte)                                     |
| Mem.obwr322             | Test video memory to non-aligned boundaries (second byte)                                    |
| Mem.obwr323             | Test video memory to non-aligned boundaries (third byte)                                     |
| Mem.wr32                | Test video memory on aligned boundaries                                                      |
| Mem.obwr16              | Uses reb stosb; rep scasb                                                                    |
| Mem.wr16                | Memory test                                                                                  |
| Mem.wr8                 | Non aligned memory test                                                                      |
| Mem.ob321               | Pattern test at different boundaries dword size                                              |
| Mem.ob322               | Pattern test with word size and different boundaries                                         |
| Mem.ob323               | Pattern test odd boundaries with dword size                                                  |
| Mem.i32                 | Pattern test                                                                                 |
| Mem.ob16                | Pattern                                                                                      |
| Mem.i16                 | Word pattern test                                                                            |
| Mem.i8                  | Byte pattern test                                                                            |
| Mem.obd321              | Reverse boundary test with dword size                                                        |
| Mem.obd322              | Reverse boundary test with word size                                                         |
| Mem.obd323              | Reverse boundary test with dword size                                                        |
| Mem.d32                 | Reverse dword pattern test                                                                   |
| Mem.obd16               | Reverse pattern test with boundaries                                                         |
| Mem.d16                 | Reverse word pattern test                                                                    |
| Mem.d8                  | Reverse byte pattern test                                                                    |
| WriteMode.wm2rm1        | Cycle through each memory page for each color [7:0] using Graphics Write mode 2, Real mode 1 |
| <b>Pattern Tests</b>    |                                                                                              |
| Mem.fast8i              | Test as bytes forward                                                                        |
| Mem.fast16i             | Test as words forward                                                                        |
| Mem.fast32i             | Test as dwords forward                                                                       |

**Table B6-6. VGA Memory Tests** *(cont.)*

| Test Name   | Description                                 |
|-------------|---------------------------------------------|
| Mem.fast8d  | Test as bytes backwards                     |
| Mem.fast16d | Test as words backwards                     |
| Mem.fast32d | Test as dwords backwards                    |
| Mem.walk08  | Walking 1s test                             |
| Mem.walk18  | Walking 1s backwards                        |
| Mem.addtest | Write address as data (Alias test)          |
| Pulse       | Use System clock 1 to get Video mode timing |

#### 1.4.1.4 RAMDAC Tests

The RAMDAC tests listed in [Table B6-7](#) assume an 18-bit DAC.

**Table B6-7. RAMDAC Tests Using an 18-Bit DAC**

| Test Name       | Description                        |
|-----------------|------------------------------------|
| Ramdac18.Rdfast | Uses rep outsb (speed check)       |
| Ramdac18.Rdwr   | Alias test                         |
| Ramdac18.Rdi    | Forward tests and then check next  |
| Ramdac18.Rdd    | Backward tests and then check next |
| Ramdac18.Rdc13  | Comprehensive test in mode 13      |
| Ramdac18.Rdc5C  | Comprehensive test in mode 5C      |
| Ramdac18.Rdc5F  | Comprehensive test in mode 5F      |
| Ramdac18.Rdc60  | Comprehensive test in mode 60      |

The RAMDAC tests listed in [Table B6-8](#) assume a 24-bit DAC.

**Table B6-8. RAMDAC Tests Using a 24-Bit DAC**

| Test Name       | Description                        |
|-----------------|------------------------------------|
| Ramdac24.Rdfast | Uses rep outsb <speed check>       |
| Ramdac24.Rdwr   | Alias test                         |
| Ramdac24.Rdi    | Forward tests and then check next  |
| Ramdac24.Rdd    | Backward tests and then check next |
| Ramdac24.Rdc13  | Comprehensive test in mode 13      |
| Ramdac24.Rdc5C  | Comprehensive test in mode 5C      |
| Ramdac24.Rdc5F  | Comprehensive test in mode 5F      |
| Ramdac24.Rdc60  | Comprehensive test in mode 60      |

### 1.4.1.5 Linear Memory Tests

The linear memory tests are tests that can be run at various sizes, forwards, backwards, and through various PCI memory apertures. The four linear memory tests are as follows:

- Test 1 — Alias test and partial walking 1s test.
- Test 2 — Alias test and partial walking 1s test (opposite pattern of Test 1).
- Test 3 — 28 pattern tests where each location is written with each pattern then verified.
- Test 4 — Random data test.

#### **Test 1**

```

Test Case 1/Write AP = 0 Read Ap=<0,1,2,3,A0000p>
<each Test case reads from different Aperture LinTest1 Read AP=0, Lintest2
Read AP=1, etc.>
LinTest0.LinTest1
LinTest0.LinTest2
LinTest0.LinTest3
LinTest0.LinTest4
LinTest0.LinTest5

Test Case 1/Write AP = 1 Read Ap=<0,1,2,3,A0000p>
LinTest0.LinTest6
LinTest0.LinTest7
LinTest0.LinTest8
LinTest0.LinTest9
LinTest0.LinTest10

Test Case 1/Write AP = 2 Read Ap=<0,1,2,3,A0000p>
LinTest0.LinTest11
LinTest0.LinTest12
LinTest0.LinTest13
LinTest0.LinTest14
LinTest0.LinTest15

Test Case 1/Write AP = 3 Read Ap=<0,1,2,3,A0000p>
LinTest0.LinTest16
LinTest0.LinTest17
LinTest0.LinTest18
LinTest0.LinTest19
LinTest0.LinTest20

Test Case 1/Write AP = A0000p Read Ap=<0,1,2,3,A0000p>
LinTest0.LinTest21
LinTest0.LinTest22
LinTest0.LinTest23
LinTest0.LinTest24
LinTest0.LinTest25

```

**Test 2**

Test Case 2/Write AP = 0 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest26  
LinTest0.LinTest27  
LinTest0.LinTest28  
LinTest0.LinTest29  
LinTest0.LinTest30

Test Case 2/Write AP = 1 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest31  
LinTest0.LinTest32  
LinTest0.LinTest33  
LinTest0.LinTest34  
LinTest0.LinTest35

Test Case 2/Write AP = 2 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest36  
LinTest0.LinTest37  
LinTest0.LinTest38  
LinTest0.LinTest39  
LinTest0.LinTest40

Test Case 2/Write AP = 3 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest41  
LinTest0.LinTest42  
LinTest0.LinTest43  
LinTest0.LinTest44  
LinTest0.LinTest45

Test Case 2/Write AP = A0000p Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest46  
LinTest0.LinTest47  
LinTest0.LinTest48  
LinTest0.LinTest49  
LinTest0.LinTest50

**Test 3**

Test Case 3/Write AP = 0 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest51  
LinTest0.LinTest52  
LinTest0.LinTest53  
LinTest0.LinTest54  
LinTest0.LinTest55

Test Case 3/Write AP = 1 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest56  
LinTest0.LinTest57  
LinTest0.LinTest58  
LinTest0.LinTest59  
LinTest0.LinTest60

Test Case 3/Write AP = 2 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest61  
LinTest0.LinTest62  
LinTest0.LinTest63  
LinTest0.LinTest64  
LinTest0.LinTest65

Test Case 3/Write AP = 3 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest66  
LinTest0.LinTest67  
LinTest0.LinTest68  
LinTest0.LinTest69  
LinTest0.LinTest70

Test Case 3/Write AP = A0000p Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest71  
LinTest0.LinTest72  
LinTest0.LinTest73  
LinTest0.LinTest74  
LinTest0.LinTest75

#### **Test 4**

Test Case 4/Write AP = 0 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest76  
LinTest0.LinTest77  
LinTest0.LinTest78  
LinTest0.LinTest79  
LinTest0.LinTest80

Test Case 4/Write AP = 1 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest81  
LinTest0.LinTest82  
LinTest0.LinTest83  
LinTest0.LinTest84  
LinTest0.LinTest85

Test Case 4/Write AP = 2 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest86  
LinTest0.LinTest87  
LinTest0.LinTest88  
LinTest0.LinTest89  
LinTest0.LinTest90

Test Case 4/Write AP = 3 Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest91  
LinTest0.LinTest92  
LinTest0.LinTest93  
LinTest0.LinTest94  
LinTest0.LinTest95

Test Case 4/Write AP = A0000p Read Ap=<0,1,2,3,A0000p>  
LinTest0.LinTest96  
LinTest0.LinTest97  
LinTest0.LinTest98  
LinTest0.LinTest99  
LinTest0.LinTest100

### 1.4.1.6 BIOS Tests

The BIOS tests listed in [Table B6-9](#) verify that the BIOS of the CL-GD546X is functioning correctly.

**Table B6-9. BIOS Tests**

| Test Name | Description                                                                       |
|-----------|-----------------------------------------------------------------------------------|
| ModelInfo | Returns all of the modes supported in the BIOS with current memory configuration. |
| BIOS0     | Quick BIOS Checks                                                                 |

### 1.4.1.7 2D Tests

The tests listed below verify the functionality of the CL-GD546X 2D graphics engine.

**Table B6-10. 2D Tests**

| Test Name | Description                                             |
|-----------|---------------------------------------------------------|
| Chroma20  | Chroma key 24 bpp                                       |
| Chroma23  | Chroma key 24 bpp                                       |
| Chroma39  | Chroma key 8 bpp                                        |
| Chroma40  | Chroma key 32 bpp                                       |
| Colrep16  | Auto foreground and background color replication 16 bpp |
| Colrep24  | Auto foreground and background color replication 24 bpp |
| Colrep32  | Auto foreground and background color replication 32 bpp |
| Colrep8   | Auto foreground and background color replication 8 bpp  |
| Igchrom1  | 5:6:5 to 5:6:5 chroma key extends greater than 128      |
| Igchrom3  | 8:8:8 to 8:8:8 chroma key extends greater than 128      |
| Igchrom5  | a:8:8:8 to 8:8:8 chroma key extends greater than 128    |

### 1.4.1.8 3D Tests

The tests listed below verify the functionality of the CL-GD546X 3D graphics engine.

**Table B6-11. 3D Tests**

| Test Name | Description                                |
|-----------|--------------------------------------------|
| geg00xaa  | Coprocessor indirect generic z-buffer test |
| geg00xah  | Coprocessor direct generic z-buffer test   |
| abh00hbe  | Coprocessor direct alpha blending          |
| abh01hbg  | Coprocessor direct alpha blending          |
| abh00hbc  | Coprocessor direct alpha blending          |
| plh00hac  | Coprocessor direct patterns                |
| lih00hcc  | Coprocessor direct lighting                |
| lih02hca  | Coprocessor direct lighting                |
| dlh00hda  | Coprocessor direct dithering               |
| dlh00hdc  | Coprocessor direct dithering               |
| dlh00hdd  | Coprocessor direct dithering               |
| dah00hef  | Coprocessor direct dashed lines            |
| cc100xda  | Coprocessor direct color compare logic     |
| cc1011aa  | Coprocessor direct color compare logic     |
| dm100xcc  | Coprocessor direct destination mask logic  |
| dm101xcc  | Coprocessor direct destination mask logic  |
| sbh001da  | Coprocessor direct saturate to bounds      |
| sb1001ca  | Coprocessor direct saturate to bounds      |
| tmg04gaa  | Coprocessor direct texture mapping         |

## 1.5 Manufacturing Test Updates

MFGTST.EXE is updated regularly. As more products are added to the CL-GD546X family of VisualMedia accelerators, more tests are added to the manufacturing test software. These tests support new functions and features of current and future products. Contact Cirrus Logic for up-to-date manufacturing test software and documentation.

