



CARLO GAVAZZI SPACE SpA

HSO/FIRST-DPU

DOCUMENT TYPE : TEST REPORT

DRD : -

TITLE: EM CPU BOARD P/N DPU-EM-100.00-0 S/N 05 TEST REPORT

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PAGE: 1 OF 64

ISSUE No: 1


DATE: 15/04/2002

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APPROVED BY: M. VITTA

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LIST OF ACRONYMS

| | |
|---------------|---|
| ARF | Active Register File |
| DPU | Data Processing Unit |
| DM | Data Memory |
| DPR | Dual Port Ram |
| EEPROM | Electrically Erasable Programmable Read Only Memory |
| EM | Engineering Model |
| EPROM | Erasable Programmable Read Only Memory |
| EQM | Engineering Qualification Model |
| FIRST | Far Infra-Red and Sub-millimeter Telescope |
| FM | Flight Model |
| FPGA | Field Programmable Gate Array |
| HIFI | Heterodyne Instrument for First |
| HSO | Herschel Space Observatory |
| IF | Interface |
| ISR | Interrupt Service Routine |
| LSA | Logic State Analyzer |
| PACS | Photoconductor Array Camera and Spectrometer |
| PCB | Printed Circuit Board |
| PM | Program Memory |
| PROM | Programmable Read Only Memory |
| PL | Payload |
| RAM | Random Access Memory |
| SC | Spacecraft |
| SPIRE | Spectral and Photometric Imaging Receiver |
| TE | Test Equipment |



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1 SCOPE

The aim of the present document is to provide a detailed test report of CPU board P/N DPU-EM-100.00-0 S/N 05 to be used in the Data Processing Units, developed in the framework of the HSO/FIRST program. Particularly it must be tested each of the following block:

1. DSP and Program Memory
2. Data Memory
3. 32-Bit Internal Bus
4. Interval Timer & Interrupt Manager
5. Watchdog
6. EEPROM
7. IEEE 1355 Interface

| | | |
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2 APPLICABLE DOCUMENTS

The current issue of the following documents is applicable:

- [AD1]: DPU-PL-CGS-001 “Product Assurance Plan for FIRST-DPU”
- [AD1]: DPU-PR-CGS-001 “EM CPU Board Test Procedure”

| | | |
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3 REFERENCE DOCUMENTS

To test the board the user needs the current issue of the following documents:

[RD1]: DPU-SP-CGS-001, FIRST CPU BOARD SPECIFICATION

[RD2]: DPU-MA-CGS-001, CPU BOARD USER MANUAL

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4 PARTICIPANTS REQUIRED

4.1 General

All tests shall be performed under QA surveillance in accordance with and following detailed procedure of CGS PA Plan [AD1].

The test shall be notified to the Customer as applicable.

4.2 Responsibility

The technical responsibilities for testing and test results is of the Engineering department.

Project and test managers are responsible for the test program. The test engineer is responsible for the correct execution of the test program and for the fulfilment of the requirements, for measurement and recording and for the preparation of the test report.

QA is responsible for ensuring that all the agreed procedures are carefully observed, that test equipment and instrumentation used during testing are calibrated and within validity date, that the test results are recorded in the relative Test Report and signed by the operators and QA, that all non conforming condition and test results are properly documented and notified to the customer and that all requirements of applicable PA Plan, Specification and Statement Of Work pertaining to the acceptance tests, are fully satisfied.

4.3 QA witness of Tests and Sign-off

QA inspector, or its delegate, shall witness the tests described in this procedure in accordance to the requirement specified in the applicable PA Plans. The PA/QA personnel will check the report by sign off each sheet.

4.4 Non-conformance and failures

Any malfunction occurred during the tests shall be processed according to the Non-Conformance Procedure.

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4.5 Calibration Requirements

All instruments used for testing shall be calibrated.

Evidence of certification shall be provided by a label attached to the instruments itself, showing the calibration date, the expire date and the signature of the operator.

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5 TEST CONDITIONS

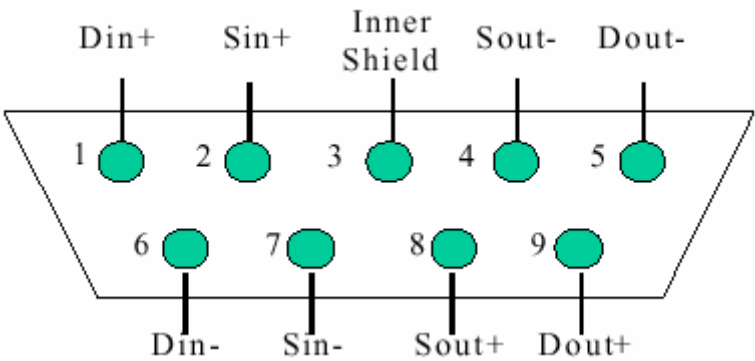
- The Unit shall be tested in its defined configuration: it shall be properly mounted, all the electrical loads (if any) shall be present and the unit interface function(s) shall be simulated.
- Unless otherwise specified, all the measurements are to be performed at the following ambient conditions:
 - Temperature : $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$
 - Relative humidity: $55\% \pm 10\% \text{ RH}$
 - Pressure : Ambient
 - Cleanliness : NA
- All tests, unless otherwise specified, shall be performed internally to CGS laboratories in a proper clean area.
General disposition shall be applied to maximise personnel safety from potential hazards.
- Skilled personnel shall be employed.
- All used instruments shall meet the necessary accuracy and shall not degrade the UUT performance.

6 TEST CONFIGURATION

To test IEEE 1355 links make the connections specified in the following Table:

| | LINK1 | LINK2 | LINK3 |
|--------------|-------------------------|-------|-------|
| Micro-D PLUG | P2 Connector Pin Number | | |
| Din+ | 10 | 44 | 74 |
| Din- | 11 | 45 | 75 |
| Sin+ | 14 | 48 | 78 |
| Sin- | 15 | 49 | 79 |
| Sout+ | 6 | 40 | 70 |
| Sout- | 7 | 41 | 71 |
| Dout+ | 2 | 36 | 66 |
| Dout- | 3 | 37 | 67 |

Table 6-1




Picture 1 Viewed from rear of socket or front of plug

7 INSTRUMENTATION

The complete list of the instruments used during the test is reported in Table 7-1.


| PROJECT: HSO/FIRST-DPU | | | | | | | |
|------------------------|----------------------|--------------|--------|------------|----------|----------------|---------|
| N. | EQUIPMENT | MANUFACTURER | P/N | S/N | ACCURACY | NEXT CAL. DATE | REMARKS |
| 1 | OSCILLOSCOPE | TEKTRONIX | TDS620 | B020528 | - | 18/04/02 | - |
| 2 | POWER SUPPLY | TOP WARD | 6303A | 667104 | - | - | - |
| 3 | POWER SUPPLY | TOP WARD | 6303A | 998095 | - | - | - |
| 4 | LOGIC STATE ANALYZER | HP | 1671G | US39240135 | - | 18/04/02 | - |
| 5 | MULTIMETER | HP | 34401A | 3146A10908 | - | 17/04/02 | - |
| | | | | | | | |
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Table 7-1


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8 TEST DATA SHEETS


The step-by-step procedure sheets are provided in the following pages.

| | | | |
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| | | DOC N°: DPU-PR-CGS-001 ISSUE : 2 DATE : 29/10/2001 PAGE : 15 of 56 | DOC N°: DPU-RP-CGS-026 ISSUE : 1 DATE : 15/04/2002 PAGE : 15 of 64 |


| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 1 | DSP and Program Memory | | | |
| 1.1 | Insert the EZ ICE probe in the JTAG plug (JP12) | | OK | |
| 1.2 | Supply electrical power to the board | Green led on | OK | |
| 1.3 | Open the program ADSP-21020 Emulator | | OK | |
| 1.4 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
| 1.5 | From menu Memory select "Program" | PM window appears | OK | |
| 1.6 | From menu Memory select "Data" | DM window appears | OK | |
| 1.7 | From menu File select "Load File..." | A prompt window appears | OK | |
| 1.8 | In the HSO folder select "hsoconf.ach" | "RAM" (left side mem. loc.) | OK | |
| 1.9 | From menu File select "Load File..." | A prompt window appears | OK | |
| 1.10 | In the HSO folder select "dsp_init.exe" | | OK | |
| 1.11 | Select Program Memory window | | OK | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 1.12 | Search "done" with the scroll bar and select the line | | OK | |
| 1.13 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 1.14 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 1.15 | Select "OK" in the FYI dialogue window | "Target halted" (status bar) | OK | |
| 1.16 | From menu Execution select "Chip Reset" | | OK | |
| 1.17 | Select "OK" | | OK | |
| 1.18 | From menu Execution select "Assembly Breaks" | | OK | |
| 1.19 | Select "Delete All" | | OK | |
| 1.20 | From menu File select "Load File..." | A prompt window appears | OK | |
| 1.21 | In the HSO folder select "hsoconf.ach" | | OK | |
| 1.22 | From menu File select "Load File..." | A prompt window appears | OK | |
| 1.23 | In the HSO folder select "pm_test2.exe" | | OK | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|---|---|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 1.24 | Select Program Memory window | | OK | |
| 1.25 | Search “done” with the scroll bar and select the line | | OK | |
| 1.26 | Double click on the memory location | “ * ” appears after “RAM” | OK | |
| 1.27 | From menu Core select “Register File” | The Active Register File window appears | OK | |
| 1.28 | From menu Execution select “Run” | “Target running” (status bar) | OK | |
| 1.29 | Select “OK” in the dialogue window FYI | “Target halted” (status bar) | OK | |
| 1.30 | Check the R2 register in the Active Register File window | R2: 0000000000 | R2: 0000000000 | |
| 1.31 | Check Program Memory content from address location 00000120 to 0007ffff | Value increases from 000001200000 to 0007ffff0000 | Value increases from 000001200000 to 0007ffff0000 | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 2 | Data Memory | | | |
| 2.1 | Insert the EZ ICE probe in the JTAG plug (JP12) | | OK | |
| 2.2 | Supply electrical power to the board | Green led on | OK | |
| 2.3 | Open the program ADSP-21020 Emulator | | OK | |
| 2.4 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
| 2.5 | From menu Memory select "Program" | PM window appears | OK | |
| 2.6 | From menu Memory select "Data" | DM window appears | OK | |
| 2.7 | From menu File select "Load File..." | A prompt window appears | OK | |
| 2.8 | In the HSO folder select "hsoconf.ach" | "RAM" (left side mem. loc.) | OK | |
| 2.9 | From menu File select "Load File..." | A prompt window appears | OK | |
| 2.10 | In the HSO folder select "dsp_init.exe" | | OK | |
| 2.11 | Select Program Memory window | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 2.12 | Search "done" with the scroll bar and select the line | | OK | |
| 2.13 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 2.14 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 2.15 | Select "OK" in the FYI dialogue window | "Target halted" (status bar) | OK | |
| 2.16 | From menu Execution select "Chip Reset" | | OK | |
| 2.17 | Select "OK" | | OK | |
| 2.18 | From menu Execution select "Assembly Breaks" | | OK | |
| 2.19 | Select "Delete All" | | OK | |
| 2.20 | From menu File select "Load File..." | A prompt window appears | OK | |
| 2.21 | In the HSO folder select "hsoconf.ach" | | OK | |
| 2.22 | From menu File select "Load File..." | A prompt window appears | OK | |
| 2.23 | In the HSO folder select "dm_rw1cy.exe" | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 2.24 | Select Program Memory window | | OK | |
| 2.25 | Search “done” with the scroll bar and select the line | | OK | |
| 2.26 | Double click on the memory location | “ * ” appears after “RAM” | OK | |
| 2.27 | From menu Core select “Register File” | The Active Register File window appears | OK | |
| 2.28 | From menu Execution select “Run” | “Target running” (status bar) | OK | |
| 2.29 | Select “OK” in the dialogue window FYI | “Target halted” (status bar) | OK | |
| 2.30 | Check the R2 register in the Active Register File window | R2: 0000000000 | R2: 0000000000 | |
| 2.31 | Check Data Memory content from address location 00000000 to 0007ffff | Value increases from 0000000000 to 0007ffff00 | OK | |
| | | | | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 3 | 32-Bit Internal Bus | | | |
| 3.1 | Insert the EZ ICE probe in the JTAG plug (JP12) | | OK | |
| 3.2 | Connect JP15 with POD1 and POD2 of LSA | | OK | |
| 3.3 | Connect the probe channel 1 oscilloscope with pin 23 of P1 | | OK | |
| 3.4 | Connect the probe channel 2 oscilloscope with pin 77 of P1 | | OK | |
| 3.5 | Connect the probe channel 0 POD3 of LSA with pin 77 of P1 | | OK | |
| 3.6 | Set LSA trigger on channel 0 POD3 signal | | OK | |
| 3.7 | Supply electrical power to the board | Green led on | OK | |
| 3.8 | Open the program ADSP-21020 Emulator | | OK | |
| 3.9 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|---|---|---|----------------------------|
| 3.10 | From menu Memory select "Program" | PM window appears | OK | |
| 3.11 | From menu Memory select "Data" | DM window appears | OK | |
| 3.12 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.13 | In the HSO folder select "hsoconf.ach" | "RAM" (left side mem. loc.) | OK | |
| 3.14 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.15 | In the HSO folder select "bus_rw0.exe" | | OK | |
| 3.16 | Select Program Memory window | | OK | |
| 3.17 | Search "done" with the scroll bar and select the line | | OK | |
| 3.18 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 3.19 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 3.20 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101 ns each) | See PVS 01 and Printout 01 |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|--|--|---|-----------------|
| 3.21 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.4ns) | See Printout 01 |
| 3.22 | Check on the screen of the LSA | Value increases from 880000000 to 88FFFFFF | OK | |
| 3.23 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 3.24 | From menu Execution select "Chip Reset" | | OK | |
| 3.25 | Select "OK" | | OK | |
| 3.26 | From menu Execution select "Assembly Breaks" | | OK | |
| 3.27 | Select "Delete All" | | OK | |
| 3.28 | Connect the probe channel 1 oscilloscope with pin 55 of P1 | | OK | |
| 3.29 | Select "Run" on LSA | | OK | |
| 3.30 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.31 | In the HSO folder select "hsoconf.ach" | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|---|---|---|----------------------------|
| 3.32 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.33 | In the HSO folder select "bus_rw1.exe" | | OK | |
| 3.34 | Select Program Memory window | | OK | |
| 3.35 | Search "done" with the scroll bar and select the line | | OK | |
| 3.36 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 3.37 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 3.38 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101.2 ns each) | See PVS 01 and Printout 02 |
| 3.39 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.4 ns) | See Printout 02 |
| 3.40 | Check on the screen of the LSA | Value increases from 89000000 to 89FFFFFF | OK | |
| 3.41 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 3.42 | From menu Execution select "Chip Reset" | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|--|----------------------------------|----------------|---------|
| 3.43 | Select "OK" | | OK | |
| 3.44 | From menu Execution select "Assembly Breaks" | | OK | |
| 3.45 | Select "Delete All" | | OK | |
| 3.46 | Connect the probe channel 1 oscilloscope with pin 87 of P1 | | OK | |
| 3.47 | Select "Run" on LSA | | OK | |
| 3.48 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.49 | In the HSO folder select "hsoconf.ach" | | OK | |
| 3.50 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.51 | In the HSO folder select "bus_rw2.exe" | | OK | |
| 3.52 | Select Program Memory window | | OK | |
| 3.53 | Search "done" with the scroll bar and select the line | | OK | |
| 3.54 | Double click on the memory location | " * " appears after "RAM" | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|--|---|---|----------------------------|
| 3.55 | From menu Execution select “Run” | “Target running” (status bar) | OK | |
| 3.56 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101.2 ns each) | See PVS 01 and Printout 03 |
| 3.57 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.2 ns) | See Printout 03 |
| 3.58 | Check on the screen of the LSA | Value increases from 8A000000 to 8AFFFFFF | OK | |
| 3.59 | Select “OK” in the dialogue window FYI | “Target halted” (status bar) | OK | |
| 3.60 | From menu Execution select “Chip Reset” | | OK | |
| 3.61 | Select “OK” | | OK | |
| 3.62 | From menu Execution select “Assembly Breaks” | | OK | |
| 3.63 | Select “Delete All” | | OK | |
| 3.64 | Connect the probe channel 1 oscilloscope with pin 24 of P1 | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|---|---|---|----------------------------|
| 3.65 | Select “Run” on LSA | | OK | |
| 3.66 | From menu File select “Load File...” | A prompt window appears | OK | |
| 3.67 | In the HSO folder select “hsoconf.ach” | | OK | |
| 3.68 | From menu File select “Load File...” | A prompt window appears | OK | |
| 3.69 | In the HSO folder select “bus_rw3.exe” | | OK | |
| 3.70 | Select Program Memory window | | OK | |
| 3.71 | Search “done” with the scroll bar and select the line | | OK | |
| 3.72 | Double click on the memory location | “ * “ appears after “RAM” | OK | |
| 3.73 | From menu Execution select “Run” | “Target running” (status bar) | OK | |
| 3.74 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101.4 ns each) | See PVS 01 and Printout 04 |
| 3.75 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.8 ns) | See Printout 04 |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
|---------------------------------|--|---|----------------|---------|
| 3.76 | Check on the screen of the LSA | Value increases from 8B000000 to 8BFFFFFF | OK | |
| 3.77 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 3.78 | From menu Execution select "Chip Reset" | | OK | |
| 3.79 | Select "OK" | | OK | |
| 3.80 | From menu Execution select "Assembly Breaks" | | OK | |
| 3.81 | Select "Delete All" | | OK | |
| 3.82 | Connect the probe channel 1 oscilloscope with pin 56 of P1 | | OK | |
| 3.83 | Select "Run" on LSA | | OK | |
| 3.84 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.85 | In the HSO folder select "hsoconf.ach" | | OK | |
| 3.86 | From menu File select "Load File..." | A prompt window appears | OK | |
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| 3.87 | In the HSO folder select "bus_rw4.exe" | | OK | |
| 3.88 | Select Program Memory window | | OK | |
| 3.89 | Search "done" with the scroll bar and select the line | | OK | |
| 3.90 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 3.91 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 3.92 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101.4 ns each) | See PVS 01 and Printout 05 |
| 3.93 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.4 ns) | See Printout 05 |
| 3.94 | Check on the screen of the LSA | Value increases from 8C000000 to 8CFFFFFF | OK | |
| 3.95 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 3.96 | From menu Execution select "Chip Reset" | | OK | |
| 3.97 | Select "OK" | | OK | |
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| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |

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|---------------------------------|--|----------------------------------|----------------|---------|
| 3.98 | From menu Execution select "Assembly Breaks" | | OK | |
| 3.99 | Select "Delete All" | | OK | |
| 3.100 | Connect the probe channel 1 oscilloscope with pin 88 of P1 | | OK | |
| 3.101 | Select "Run" on LSA | | OK | |
| 3.102 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.103 | In the HSO folder select "hsoconf.ach" | | OK | |
| 3.104 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.105 | In the HSO folder select "bus_rw5.exe" | | OK | |
| 3.106 | Select Program Memory window | | OK | |
| 3.107 | Search "done" with the scroll bar and select the line | | OK | |
| 3.108 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 3.109 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
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| 3.110 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101 ns each) | See PVS 01 and Printout 06 |
| 3.111 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.4 ns) | See Printout 06 |
| 3.112 | Check on the screen of the LSA | Value increases from 8D000000 to 8DFFFFFF | OK | |
| 3.113 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 3.114 | From menu Execution select "Chip Reset" | | OK | |
| 3.115 | Select "OK" | | OK | |
| 3.116 | From menu Execution select "Assembly Breaks" | | OK | |
| 3.117 | Select "Delete All" | | OK | |
| 3.118 | Connect the probe channel 1 oscilloscope with pin 25 of P1 | | OK | |
| 3.119 | Select "Run" on LSA | | OK | |
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| 3.120 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.121 | In the HSO folder select "hsoconf.ach" | | OK | |
| 3.122 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.123 | In the HSO folder select "bus_rw6.exe" | | OK | |
| 3.124 | Select Program Memory window | | OK | |
| 3.125 | Search "done" with the scroll bar and select the line | | OK | |
| 3.126 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 3.127 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 3.128 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 110 ns each) | Sequence of two negative pulses (width 101 ns each) | See PVS 01 and Printout 07 |
| 3.129 | Verify signal on channel 2 of the oscilloscope | Sequence of a negative pulse (width < 60 ns) | Sequence of a negative pulse (width 31.6ns) | See Printout 07 |
| 3.130 | Check on the screen of the LSA | Value increases from 8E000000 to 8EFFFFFF | OK | |
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| 3.131 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 3.132 | From menu Execution select "Chip Reset" | | OK | |
| 3.133 | Select "OK" | | OK | |
| 3.134 | From menu Execution select "Assembly Breaks" | | OK | |
| 3.135 | Select "Delete All" | | OK | |
| 3.136 | Connect the probe channel 1 oscilloscope with pin 57 of P1 | | OK | |
| 3.137 | Select "Run" on LSA | | OK | |
| 3.138 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.139 | In the HSO folder select "hsoconf.ach" | | OK | |
| 3.140 | From menu File select "Load File..." | A prompt window appears | OK | |
| 3.141 | In the HSO folder select "bus_rw7.exe" | | OK | |
| 3.142 | Select Program Memory window | | OK | |
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| 3.143 | Search “done” with the scroll bar and select the line | | OK | |
| 3.144 | Double click on the memory location | “ * “ appears after “RAM” | OK | |
| 3.145 | From menu Execution select “Run” | “Target running” (status bar) | OK | |
| 3.146 | Verify signal on channel 1 of the oscilloscope | Sequence of two negative pulses (width < 400 ns each) | Sequence of two negative pulses (width 300.5 ns each) | See Printout 08 |
| 3.147 | Verify signal on channel 2 of the oscilloscope | Sequence of a pulse (width < 350 ns) | Sequence of a negative pulse (width 230.5 ns) | See Printout 08 |
| 3.148 | Check on the screen of the LSA | Value increases from 8F000000 to 8FFFFFFF | OK | |
| 3.149 | Select “OK” in the dialogue window FYI | “Target halted” (status bar) | OK | |
| 3.150 | From menu Execution select “Chip Reset” | | OK | |
| 3.151 | Select “OK” | | OK | |
| 3.152 | From menu Execution select “Assembly Breaks” | | OK | |
| 3.153 | Select “Delete All” | | OK | |
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| 4 | Interval Timer & Interrupt Manager | | | |
| 4.1 | Insert the EZ ICE probe in the JTAG plug | | OK | |
| 4.2 | Supply electrical power to the board | Green led on | OK | |
| 4.3 | Open the program ADSP-21020 Emulator | | OK | |
| 4.4 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
| 4.5 | From menu Memory select "Program" | PM window appears | OK | |
| 4.6 | From menu Memory select "Data" | DM window appears | OK | |
| 4.7 | From menu File select "Load File..." | A prompt window appears | OK | |
| 4.8 | In the HSO folder select "hsoconf.ach" | | OK | |
| 4.9 | From menu File select "Load File..." | A prompt window appears | OK | |
| 4.10 | In the HSO folder select "it_test.exe" | | OK | |
| 4.11 | From menu Core select "Register File" | The A R F window appears | OK | |
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| 4.12 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 4.13 | Wait 60 seconds | | OK | |
| 4.14 | From menu Execution select "Halt" | "Target halted" (status bar) | OK | |
| 4.15 | Check the R5 register in the Active Register File window | R5: 000000003C | R5: 000000003C | |
| 4.16 | Connect the probe channel 1 oscilloscope with pin 3 of JP2 | | OK | |
| 4.17 | Verify signal on channel 1 of the oscilloscope | Sequence of a pulse (width ~200 ns) every second | Sequence of a pulse (width: 196.4 ns, T: 1s) | |
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| 5 | Watchdog | | | |

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| 5.1 | Insert the EZ ICE probe in the JTAG plug | | OK | |
| 5.2 | Verify that JP1 is not closed | | OK | |
| 5.3 | Connect the probe channel 1 oscilloscope with pin 2 of JP1 | | OK | |
| 5.4 | Supply electrical power to the board | Green led on | OK | |
| 5.5 | Open the program ADSP-21020 Emulator | | OK | |
| 5.6 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
| 5.7 | From menu Memory select "Program" | PM window appears | OK | |
| 5.8 | From menu Memory select "Data" | DM window appears | OK | |
| 5.9 | From menu File select "Load File..." | A prompt window appears | OK | |
| 5.10 | In the HSO folder select "hsoconf.ach" | "RAM" (left side mem. loc.) | OK | |
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| 5.11 | From menu File select "Load File..." | A prompt window appears | OK | |
| 5.12 | In the HSO folder select "wdtrigg.exe" | | OK | |

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| 5.13 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 5.14 | Verify signal on channel 1 of the oscilloscope | Signal goes up to 5V | OK | |
| 5.15 | From menu Execution select "Halt" | "Target halted" (status bar) | OK | |
| 5.16 | Close the program ADSP-21020 Emulator | | OK | |
| 5.17 | Switch the board off | | OK | |
| 5.18 | Close JP1 | | OK | |
| 5.19 | Supply electrical power to the board | Green led on | OK | |
| 5.20 | Check the red LED (D3) | Red led light on after 13 seconds | OK | |
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| 6 | EEPROM | | | |
| 6.1 | Insert the EZ ICE probe in the JTAG plug | | OK | |

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| 6.2 | Verify that JP3 is closed | | OK | |
| 6.3 | Supply electrical power to the board | Green led on | OK | |
| 6.4 | Open the program ADSP-21020 Emulator | | OK | |
| 6.5 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
| 6.6 | From menu Memory select "Program" | PM window appears | OK | |
| 6.7 | From menu Memory select "Data" | DM window appears | OK | |
| 6.8 | From menu File select "Load File..." | A prompt window appears | OK | |
| 6.9 | In the HSO folder select "hsoconf.ach" | "RAM" (left side mem. loc.) | OK | |
| 6.10 | From menu Memory select "Operation" and then "Fill" | Fill Memory Data window appears | OK | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | S/N: 05 | |
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 6.11 | Type "00000000" | | OK | |
| 6.12 | Select "OK" | Fill Memory Range window appears | OK | |

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|---------------------------------|---|----------------------------------|----------------|---------|
| 6.13 | In Starting Address field type "80000000" | | OK | |
| 6.14 | In Ending Address field type "80000FFF" | | OK | |
| 6.15 | In Memory Space field select "DM" | | OK | |
| 6.16 | Select "OK" | | OK | |
| 6.17 | Verify the DM content from address 80000000 to 80000FFF | "FFFFFFFF00" | FFFFFFFF00 | |
| 6.18 | Close the program ADSP-21020 Emulator | | OK | |
| 6.19 | Switch the board off | | OK | |
| 6.20 | Open JP3 | | OK | |
| 6.21 | Supply electrical power to the board | Green led on | OK | |
| DATE 10/04/2002 | TEST CONDUCTOR | PRODUCT ASSURANCE | CUSTOMER | |
| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | S/N: 05 | |
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 6.22 | Open the program ADSP-21020 Emulator | | OK | |
| 6.23 | Type Enter two times to end Row JTAG and Opcode Scan Test | | OK | |
| 6.24 | From menu Memory select "Program" | PM window appears | OK | |

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| | | | | |
|---------------------------------|--|----------------------------------|----------------|---------|
| 6.25 | From menu Memory select "Data" | DM window appears | OK | |
| 6.26 | From menu File select "Load File..." | A prompt window appears | OK | |
| 6.27 | In the HSO folder select "hsoconf.ach" | "RAM" (left side mem. loc.) | OK | |
| 6.28 | From menu File select "Load File..." | A prompt window appears | OK | |
| 6.29 | In the HSO folder select "eep_rw.exe" | | OK | |
| 6.30 | Select Program Memory window | | OK | |
| 6.31 | Search "done" with the scroll bar and select the line | | OK | |
| 6.32 | Double click on the memory location | " * " appears after "RAM" | OK | |
| 6.33 | From menu Core select "Register File" | The A R F window appears | OK | |
| DATE 10/04/2002 | TEST CONDUCTOR | PRODUCT ASSURANCE | CUSTOMER | |
| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | S/N: 05 | |
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 6.34 | From menu Execution select "Run" | "Target running" (status bar) | OK | |
| 6.35 | Select "OK" in the dialogue window FYI | "Target halted" (status bar) | OK | |
| 6.36 | Check the R2 register in the Active Register File window | R2: 0000000000 | R2: 0000000000 | |
| 6.37 | Verify the DM content from address 80000000 to | Value increases from | OK | |

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|---------------------------------|--|----------------------------------|----------------|--|
| | 8003FFFF | 8000000000 to 8003FFFF00 | | |
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| DATE 10/04/2002 | TEST CONDUCTOR | PRODUCT ASSURANCE | CUSTOMER | |
| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | S/N: 05 | |
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7 | IEEE 1355 Interface | | | IEEE 1355 interface is not mounted on serial number 05 (SPIRE CONFIGURATION) |
| 7.1 | Insert the EZ ICE probe in the JTAG plug | | N.A. | |
| 7.2 | Make the connections specified in Table 6-1 (LINK 1) | | N.A. | |
| 7.3 | Supply electrical power to the board | Green led on | N.A. | |

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|---------------------------------|---|----------------------------------|----------------|---------|
| 7.4 | Open the program ADSP-21020 Emulator | | N.A. | |
| 7.5 | Type Enter two times to end Row JTAG and Opcode Scan Test | | N.A. | |
| 7.6 | From menu Memory select "Program" | PM window appears | N.A. | |
| 7.7 | From menu Memory select "Data" | DM window appears | N.A. | |
| 7.8 | From menu Execution select "CBUG" | CBUG window appears | N.A. | |
| 7.9 | From menu File select "Load File..." | A prompt window appears | N.A. | |
| 7.10 | In the HSO folder select "boot.ach" | | N.A. | |
| 7.11 | From menu File select "Load File..." | A prompt window appears | N.A. | |
| DATE 10/04/2002 | TEST CONDUCTOR | PRODUCT ASSURANCE | CUSTOMER | |
| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | S/N: 05 | |
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.12 | In the HSO folder select "1355ts1" | | N.A. | |
| 7.13 | From menu Execution select "Restart" | | N.A. | |
| 7.14 | Search line " /** START 1 LINK **/ " in the program | | N.A. | |
| 7.15 | Double click on " if (d_ErrorCode !=0)... " | " * " appears before the line | N.A. | |


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|--------------------|--|-----------------------------------|----------|--|
| 7.16 | From menu Execution select "Continue" | | N.A. | |
| 7.17 | Connect the probe channel 1 oscilloscope with pin 9 of U21 | | N.A. | |
| 7.18 | Verify signal on channel 1 of the oscilloscope | Waveform as depicted in Picture 2 | N.A. | |
| 7.19 | Measure the first negative pulse duration | 400 ns | N.A. | |
| 7.20 | In the CBUG window search line " /** START 2 LINK **/ " | | N.A. | |
| 7.21 | Double click on " if (d_ErrorCode !=0)... " | " * " appears | N.A. | |
| 7.22 | Open program "SpaceWireTest" on 1355TE | A DOS window appears | N.A. | |
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Picture 2 Data signal on link start

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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|--|------------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.23 | From menu select "2" | Link1, 2, 3 "Transfer Not Started" | N.A. | |
| 7.24 | From menu select "10" | "Enter Link" | N.A. | |
| 7.25 | Type "2" | "Enter file name" | N.A. | |
| 7.26 | Type ""rx1.txt" | "Enter file size in byte" | N.A. | |
| 7.27 | Type "1024" | "Confirm..." | N.A. | |
| 7.28 | Type "Y" | | N.A. | |
| 7.29 | From menu Execution of emulator select "Continue" | | N.A. | |
| 7.30 | Open file "rx1.txt" on 1355TE | "Transmission successful" was | N.A. | |
| 7.31 | In the CBUG window search "/* ** START 3 LINK **/" | | N.A. | |
| 7.32 | Double click on " if (d_ErrorCode !=0)... " | " * " appears | N.A. | |
| 7.33 | From menu of "SpaceWireTest" program select "12" | "Enter link" | N.A. | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|--|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.34 | Type "2" | "Enter file name" | N.A. | |
| 7.35 | Type "tx.txt" | "Enter packet size" | N.A. | |
| 7.36 | Type "256" | "Confirm..." | N.A. | |
| 7.36 | Type "Y" | | N.A. | |
| 7.37 | From menu Execution of emulator select "Continue" | | N.A. | |
| 7.38 | From menu Data select "Watch" | Watch window appears | N.A. | |
| 7.39 | Type "RX_BUFFER" | | N.A. | |
| 7.40 | Select "OK" | Value increases from 00 to FF | N.A. | |
| 7.41 | From menu File Select "Exit" | A prompt window appears | N.A. | |
| 7.42 | Select "Yes" | | N.A. | |
| 7.43 | Switch off the Power Supply | Green led off | N.A. | |
| 7.44 | Make the connections specified in Table 6-1 (LINK 2) | | N.A. | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.45 | Supply electrical power to the board | Green led on | N.A. | |
| 7.46 | Open the program ADSP-21020 Emulator | | N.A. | |
| 7.47 | Type Enter two times to end Row JTAG and Opcode Scan Test | | N.A. | |
| 7.48 | From menu Memory select "Program" | PM window appears | N.A. | |
| 7.49 | From menu Memory select "Data" | DM window appears | N.A. | |
| 7.50 | From menu Execution select "CBUG" | CBUG window appears | N.A. | |
| 7.51 | From menu File select "Load File..." | A prompt window appears | N.A. | |
| 7.52 | In the HSO folder select "boot.ach" | | N.A. | |
| 7.53 | From menu File select "Load File..." | A prompt window appears | N.A. | |
| 7.54 | In the HSO folder select "1355ts2" | | N.A. | |
| 7.55 | From menu Execution select "Restart" | | N.A. | |
| 7.56 | Search line " /** START 1 LINK **/ " in the program | | N.A. | |
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|  CARLO GAVAZZI SPACE S.p.A. | HSO/FIRST-DPU | TEST PROCEDURE REFERENCE | TEST REPORT REFERENCE |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|--|------------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.57 | Double click on “ if (d_ErrorCode !=0)... “ | “ * “ appears | N.A. | |
| 7.58 | From menu Execution select “Continue” | | N.A. | |
| 7.59 | Connect the probe channel 1 oscilloscope with pin 7 of U23 | | N.A. | |
| 7.60 | Verify signal on channel 1 of the oscilloscope | Waveform as depicted in Picture 2 | N.A. | |
| 7.61 | Measure the first negative pulse duration | 400 ns | N.A. | |
| 7.62 | In the CBUG window search line “ /** START 2 LINK **/ “ | | N.A. | |
| 7.63 | Double click on “ if (d_ErrorCode !=0)... “ | “ * “ appears | N.A. | |
| 7.64 | Open program “SpaceWireTest” on 1355TE | A DOS window appears | N.A. | |
| 7.65 | From menu select “2” | Link1, 2, 3 “Transfer Not Started” | N.A. | |
| 7.66 | From menu select “10” | “Enter Link” | N.A. | |
| 7.67 | Type “2” | “Enter file name” | N.A. | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.68 | Type ""rx2.txt" | "Enter file size in byte" | N.A. | |
| 7.69 | Type "1024" | "Confirm..." | N.A. | |
| 7.70 | Type "Y" | | N.A. | |
| 7.71 | From menu Execution of emulator select "Continue" | | N.A. | |
| 7.72 | Open file "rx2.txt" on 1355TE | "Transmission successful" was | N.A. | |
| 7.73 | In the CBUG window search "/* START 3 LINK */" | | N.A. | |
| 7.74 | Double click on " if (d_ErrorCode !=0)... " | " * " appears | N.A. | |
| 7.75 | From menu of "SpaceWireTest" program select "12" | "Enter link" | N.A. | |
| 7.76 | Type "2" | "Enter file name" | N.A. | |
| 7.77 | Type "tx.txt" | "Enter packet size" | N.A. | |
| 7.78 | Type "256" | "Confirm..." | N.A. | |
| 7.79 | From menu Execution of emulator select "Continue" | | N.A. | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.80 | From menu Data select "Watch" | Watch window appears | N.A. | |
| 7.81 | Type "RX_BUFFER" | | N.A. | |
| 7.82 | Select "OK" | Value increases from 00 to FF | N.A. | |
| 7.83 | From menu File Select "Exit" | A prompt window appears | N.A. | |
| 7.84 | Select "Yes" | | N.A. | |
| 7.85 | Switch off the Power Supply | Green led off | N.A. | |
| 7.86 | Make the connections specified in Table 6-1 (LINK 3) | | N.A. | |
| 7.87 | Supply electrical power to the board | Green led on | N.A. | |
| 7.88 | Open the program ADSP-21020 Emulator | | N.A. | |
| 7.89 | Type Enter two times to end Row JTAG and Opcode Scan Test | | N.A. | |
| 7.90 | From menu Memory select "Program" | PM window appears | N.A. | |
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|---------------------------------|--|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.91 | From menu Memory select "Data" | DM window appears | N.A. | |
| 7.92 | From menu Execution select "CBUG" | CBUG window appears | N.A. | |
| 7.93 | From menu File select "Load File..." | A prompt window appears | N.A. | |
| 7.94 | In the HSO folder select "boot.ach" | | N.A. | |
| 7.95 | From menu File select "Load File..." | A prompt window appears | N.A. | |
| 7.96 | In the HSO folder select "1355ts3" | | N.A. | |
| 7.97 | From menu Execution select "Restart" | | N.A. | |
| 7.98 | Search line " /** START 1 LINK **/ " in the program | | N.A. | |
| 7.99 | Double click on " if (d_ErrorCode !=0)... " | " * " appears | N.A. | |
| 7.100 | From menu Execution select "Continue" | | N.A. | |
| 7.101 | Connect the probe channel 1 oscilloscope with pin 9 of U24 | | N.A. | |
| 7.102 | Verify signal on channel 1 of the oscilloscope | Waveform as depicted in P.1 | N.A. | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|------------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.103 | Measure the first negative pulse duration | 400 ns | N.A. | |
| 7.104 | In the CBUG window search line " /** START 2 LINK **/ " | | N.A. | |
| 7.105 | Double click on " if (d_ErrorCode !=0)... " | " * " appears | N.A. | |
| 7.106 | Open program "SpaceWireTest" on 1355TE | A DOS window appears | N.A. | |
| 7.107 | From menu select "2" | Link1, 2, 3 "Transfer Not Started" | N.A. | |
| 7.108 | From menu select "10" | "Enter Link" | N.A. | |
| 7.109 | Type "2" | "Enter file name" | N.A. | |
| 7.110 | Type ""rx3.txt" | "Enter file size in byte" | N.A. | |
| 7.111 | Type "1024" | "Confirm..." | N.A. | |
| 7.112 | Type "Y" | | N.A. | |
| 7.113 | From menu Execution of emulator select "Continue" | | N.A. | |
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| TITLE: CPU BOARD TEST PROCEDURE | | UNIT UNDER TEST: DPU-EM-100.00-0 | | S/N: 05 |
|---------------------------------|---|----------------------------------|----------------|---------|
| STEP N° | TEST SEQUENCE | EXPECTED VALUE | MEASURED VALUE | REMARKS |
| 7.114 | Open file "rx3.txt" on 1355TE | "Transmission successful" was | N.A. | |
| 7.115 | In the CBUG window search "/** START 3 LINK **/" | | N.A. | |
| 7.116 | Double click on " if (d_ErrorCode !=0)... " | " * " appears | N.A. | |
| 7.117 | From menu of "SpaceWireTest" program select "12" | "Enter link" | N.A. | |
| 7.118 | Type "2" | "Enter file name" | N.A. | |
| 7.119 | Type "tx.txt" | "Enter packet size" | N.A. | |
| 7.120 | Type "256" | "Confirm..." | N.A. | |
| 7.121 | From menu Execution of emulator select "Continue" | | N.A. | |
| 7.122 | From menu Data select "Watch" | Watch window appears | N.A. | |
| 7.123 | Type "RX_BUFFER" | | N.A. | |
| 7.124 | Select "OK" | Value increases from 00 to FF | N.A. | |
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9 PROCEDURE VARIATION SHEETS

| PROCEDURE VARIATION SHEET 01 | | | |
|---|------|--|--|
| Test procedure Ref.: DPU-PR-CGS-001 Issue 2 | | Page revised: 22, 24, 26, 27, 29, 31, 32 | Para. revised: (Step) 3.20, 38, 56, 74, 92, 110, 128 |
| <p>Description of changes:</p> <div> <div> 3.20 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> <div> <div> 3.38 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> <div> <div> 3.56 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> <div> <div> 3.74 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> <div> <div> 3.92 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> <div> <div> 3.110 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> <div> <div> 3.128 EXPECTED VALUE: Sequence of two negative pulses (width < 80 ns each) Sequence of two negative pulses (width < 110 ns each) </div> <div> becomes: </div> </div> | | | |
| <p>Reason for changes:</p> <p>Access to the peripherals mapped from address 88000000 to 8e000000 occurs with one hardware wait state.</p> | | | |
| CONCURRENCE | | | |
| TEST COND | P.A. | ENG. | CUSTOMER |

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|---|------------------------|--|

10 CONCLUSIONS

The unit CPU Board DPU-EM-100.00-0 S/N 05 was tested according to the specification DPU-SP-CGS-001 Issue 1 and following the procedures DPU-PR-CGS-001 Issue 2.

The results of the tests are contained in this document. All the measurements are in agreement with the specifications.



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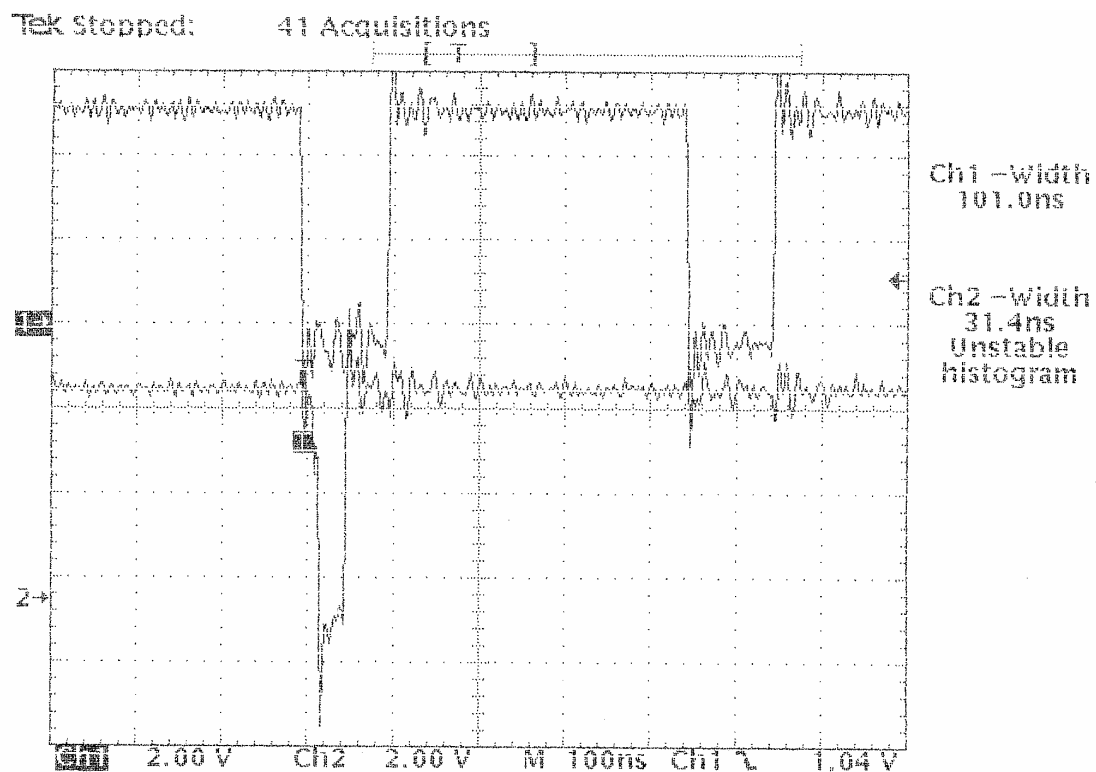
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11 PRINTOUTS

11.1 Printout 01 (see step 3.20, 3.21)



Ch1: \CS0

Ch2: \BUSWR

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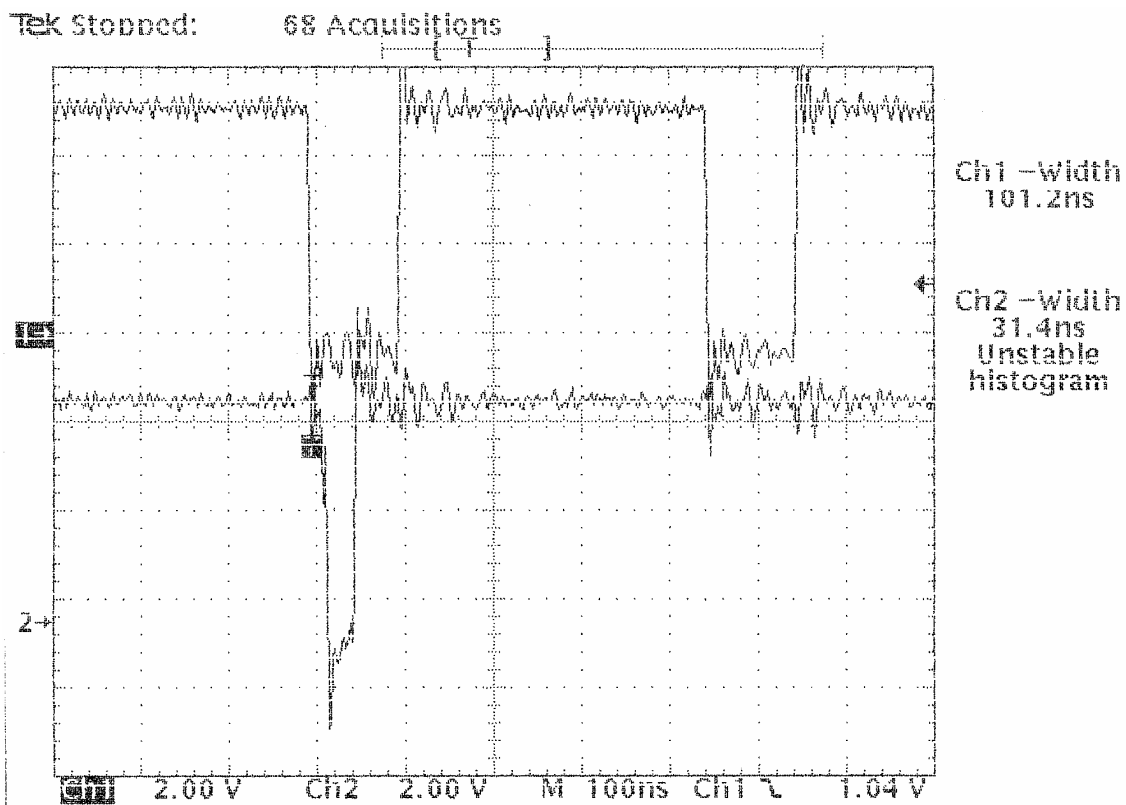
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11.2 Printout 02 (see step 3.38, 3.39)



Ch1: \CS1

Ch2: \BUSWR

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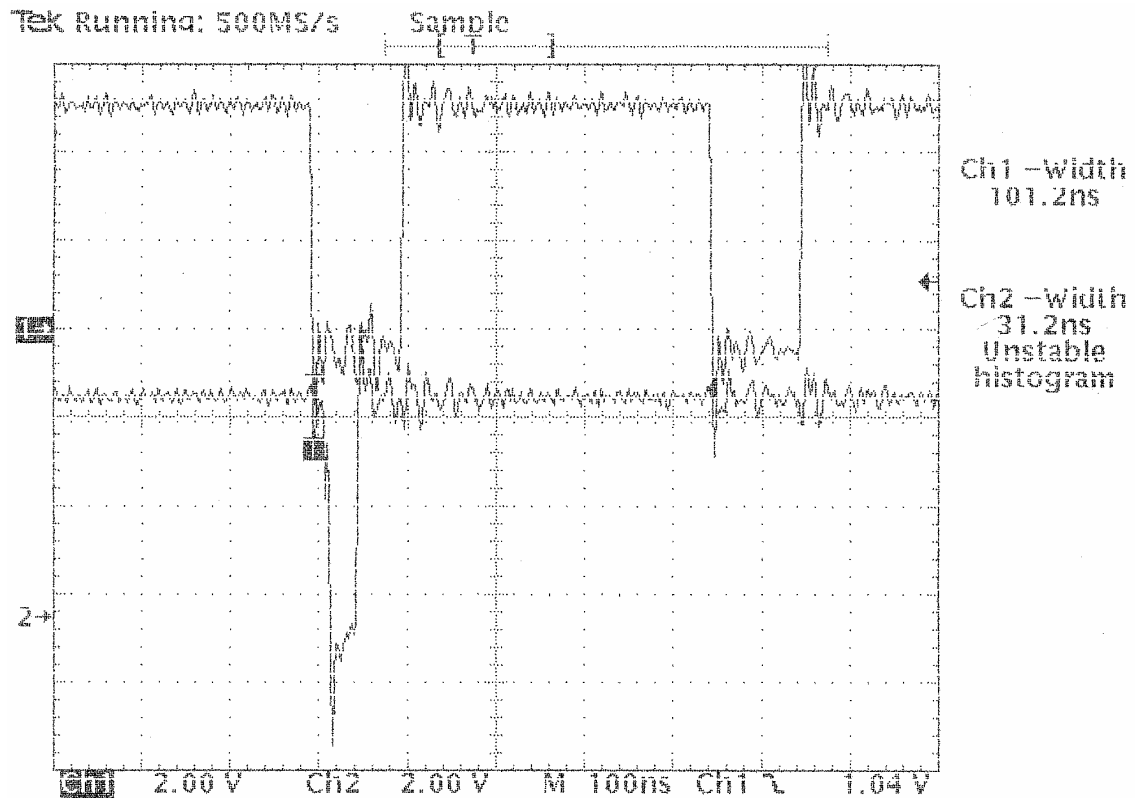
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11.3 Printout 03 (see step 3.56, 3.57)



Ch1: \CS2

Ch2: \BUSWR

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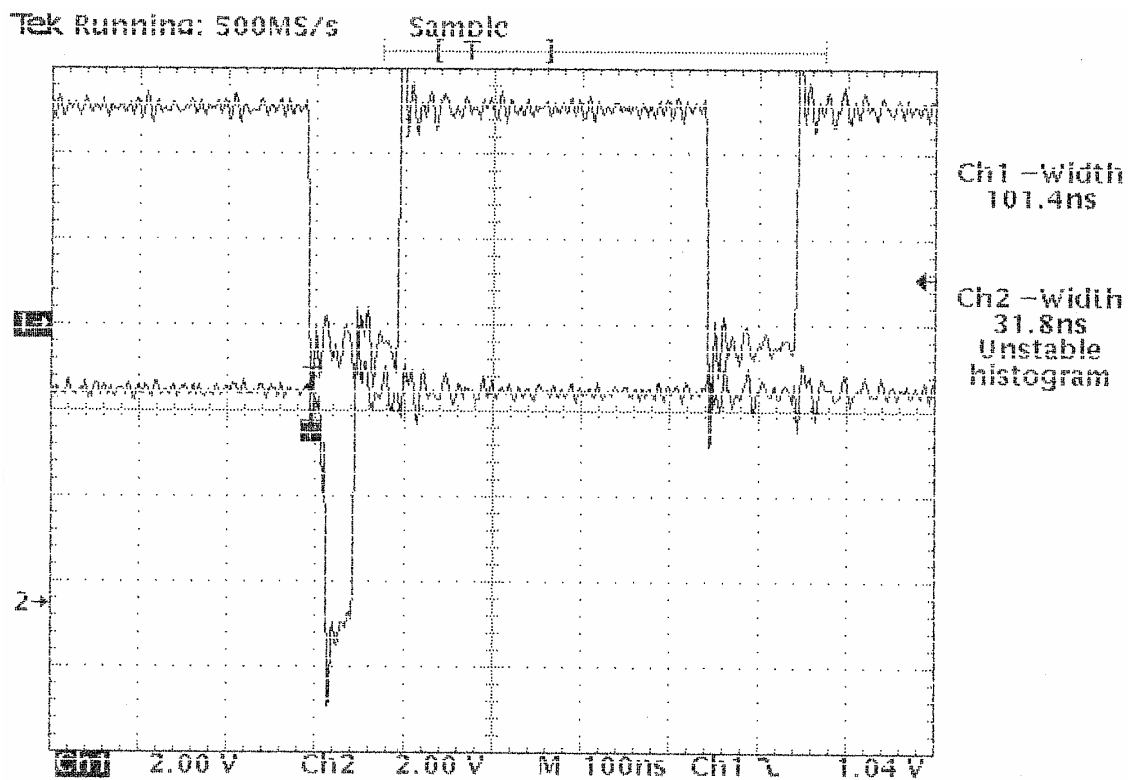
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11.4 Printout 04 (see step 3.74, 3.75)



Ch1: \CS3

Ch2: \BUSWR

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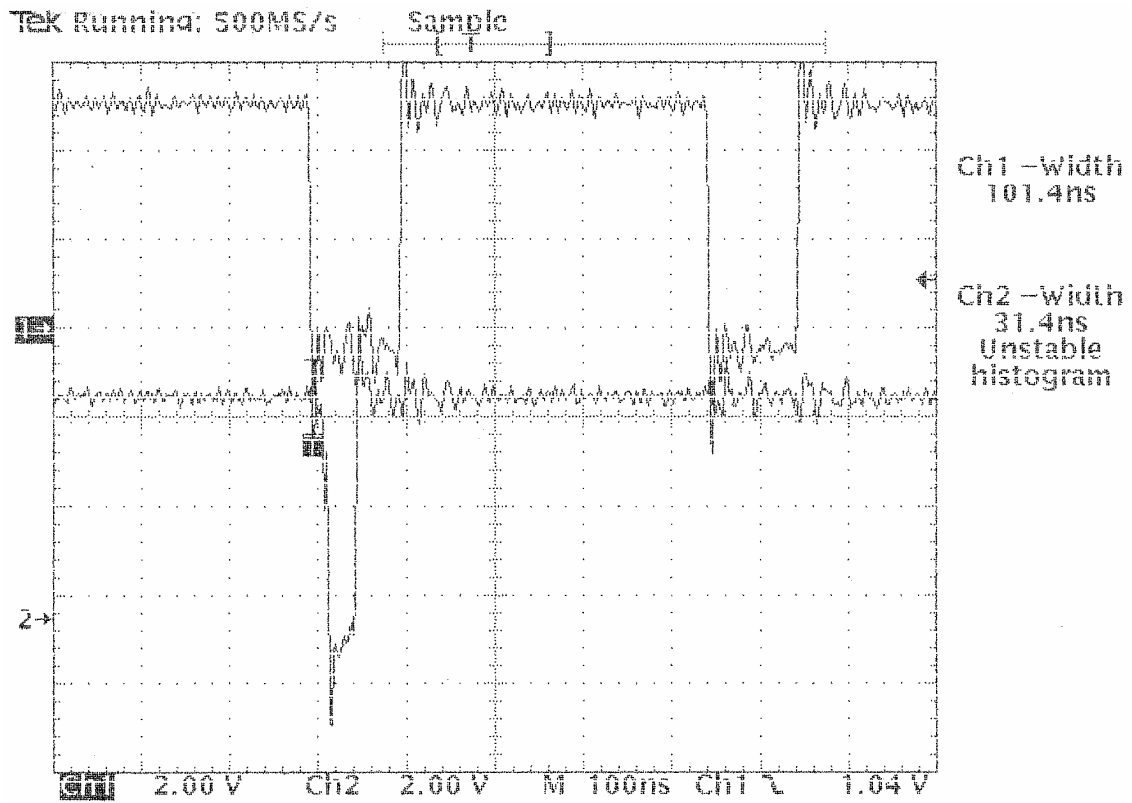
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11.5 Printout 05 (see step 3.92, 3.93)



Ch1: \CS4

Ch2: \BUSWR

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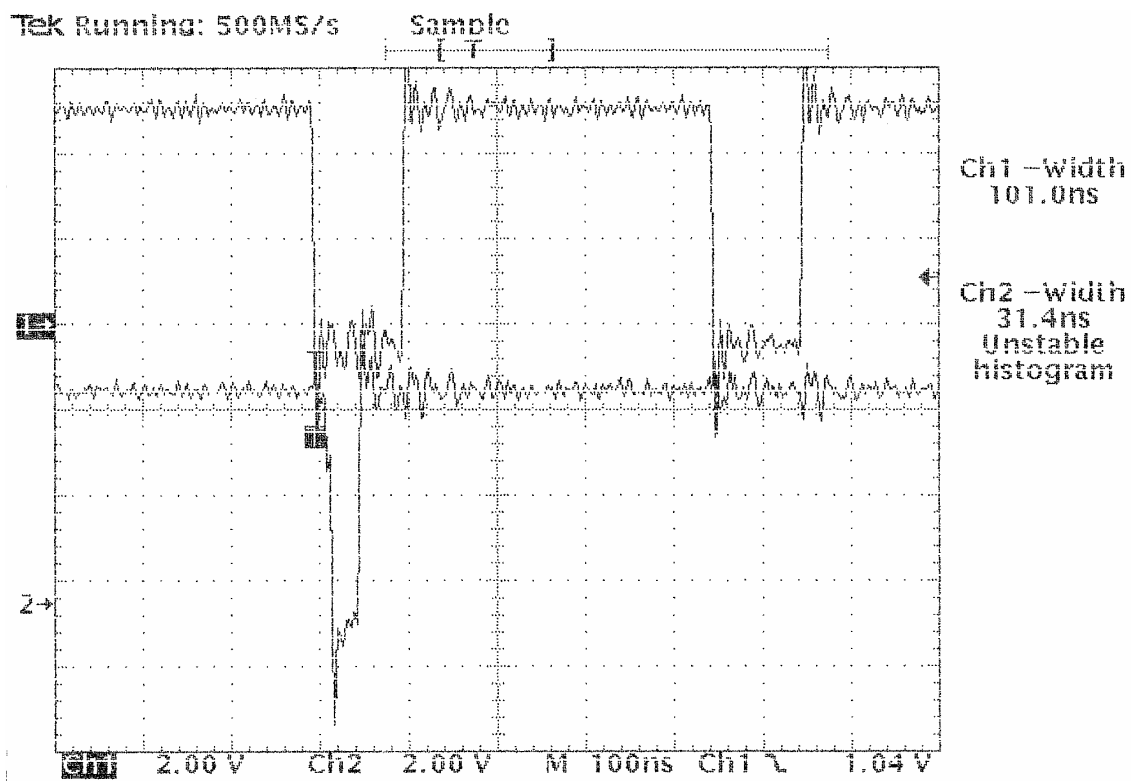
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11.6 Printout 06 (see step 3.110, 3.111)



Ch1: \CS5

Ch2: \BUSWR

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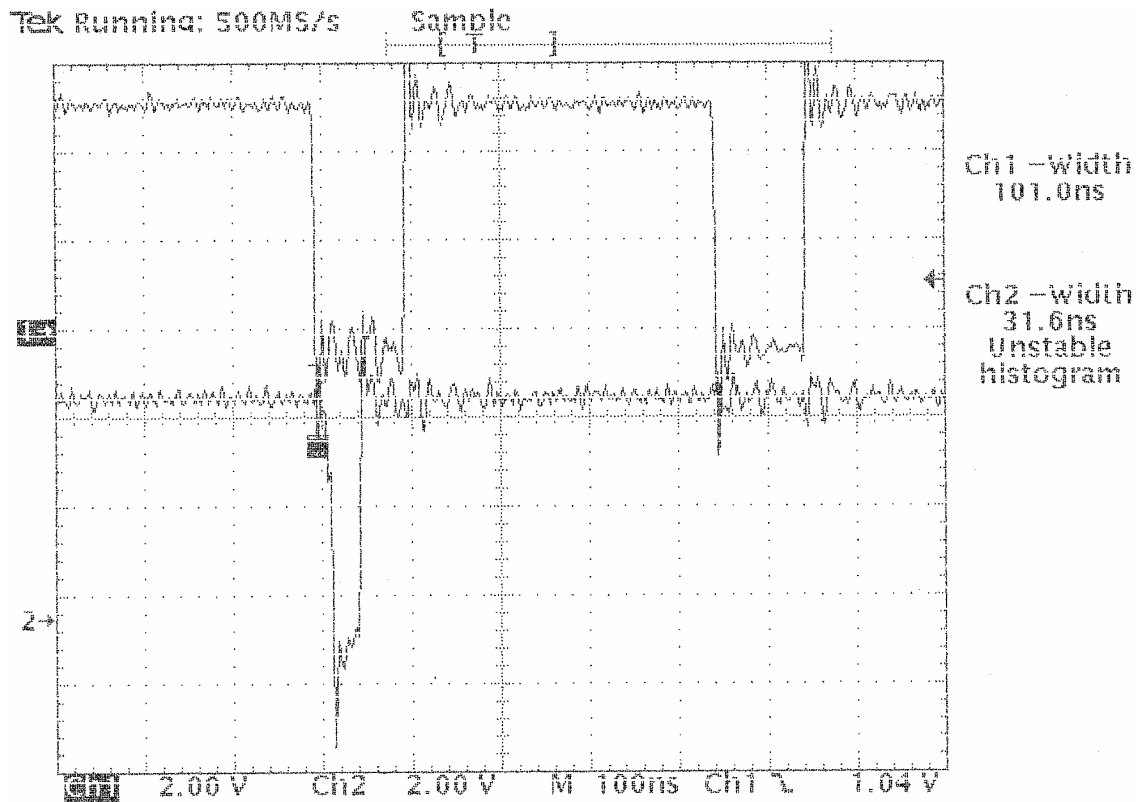
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11.7 Printout 07 (see step 3.128, 3.129)



Ch1: \CS6

Ch2: \BUSWR

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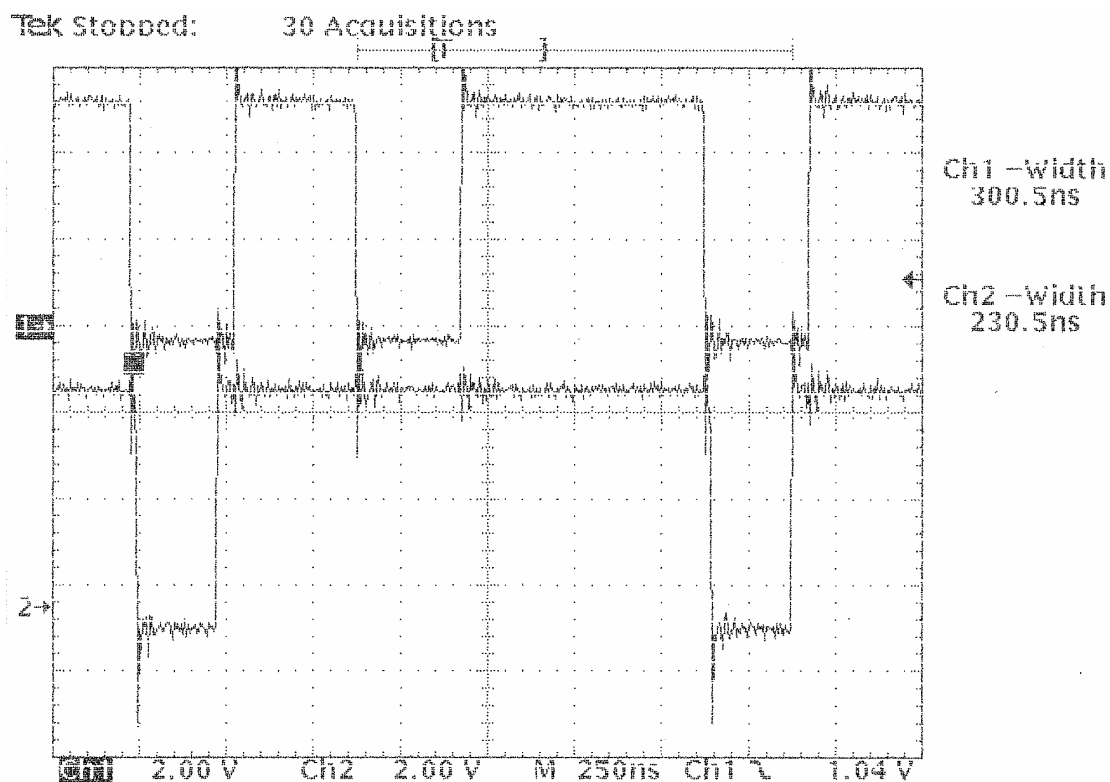
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11.8 Printout 08 (see step 3.146, 3.147)



Ch1: \CS7

Ch2: \BUSWR

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