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Our Focus is HP/Agilent Testsystems

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AGILENT 3070 / I5000 Programming
General Description

Specification:
This is a description of the procedures, terms and conditions of WG-Test incircuit test program generation for the board. It is valid unless otherwise specified in the quotation main part. All descriptions are for Agilent 3070 as for I5000 or i3070 unmuxed. The program generation tasks are described as follows; the order reflects the execution order in time.

1. Data Entry
All data entry is done based on the data provided by the customer:
- CAD-Files or "board" and "board_xy"
- Schematics and partslist
- Assembly drawing with coordinates
- loaded and unloaded board

2. Programm Generation
- Data transfer into AGILENT 3070 Testsystem from CAD-Data.
- Generation of Test-Setups and Part-Libraries.
- Generation of digital ICT-Libraries for Bscan-IC's from given BSDL-Files.
- Definition of TestJet Tests or ConnectCheck
- Definition of Switch-Probes
- IPG-Run and check of result-files.
- Creation of Documentation for Fixture building
- Documentation of non-standard fixture wiring.
- Transfer of fixture files to fixture builder.

Data-translation will be done from the customer provided data and libraries. The data must contain the following blocks of information in ASCII format:
- netlist
- partlist (values, tolerances, IC-types)
- XY-coords (as absolut values referenced to a defined board-zero)

All data must be valid and according to the latest version of partlist and board layout. A check of the data for consistency, completeness and correctness will be done samplewise against the schematics and by XY-plot. By default the program generation will be performed for one basic version of the boards.

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During the program generation we will adhere as far as possible to the standard procedures of the AGILENT 3070-Testsystems. Four-wire measurements will be implemented as far as the tester resources allow. The test system configuration (config) will be provided by the customer.

Digital setups will be created from schematics for digital devices not in the AGILENT-library and not provided by the customer. We will take datasheets from the Internet as far as available and findable. Special datasheets need to be provided by the customer on request. We may use the AGILENT 3070-Tool „Setup-Generator“ for unknown devices. For Bscan devices we will generate digital libraries from your provided BSDL-files. Flash-, Bscan-, ISP-, EEPROM or other device programming is not covered in a standard offer.
CAD- and programming data must be provided in human readable form (ASCII, not binary).

TestJet (or VTEP) will be prepared for all devices with more than 20 pins, for devices not in the library or for connectors which are TestJet-testable. For not TestJet-testable connectors we may define Switch-Probe-Tests. The final selection of TestJet-tests and Switch-Probes will be decided between the customer, the fixture builder and us. Für TestJet-tested digital devices we may use reduced or even no Digital-Setups.

During data entry we will prepare a digital pintoggle test for digital devices wherever possible. TestJet or ConnectCheck will be implemented additionally. Objective is to activate a full pintoggle digital test or at least a TestJet or ConnectCheck test in combination with a Present&Alive test (min. 1 pin toggled).
For the testing of SMD-IC’s we suggest the following test priorities:

1. Digital-Test (full pintoggle test of standard lib’s if topology or node access allows)
2. TestJet (or ConnectCheck) combined with Present&Alive-Test (min. 1 Pin toggeled)
3. TestJet alone
4. ConnectCheck

We see TestJet or ConnectCheck in combination with a Present&Alive test as the most economic way for large or unknown Ics to get best testcoverage at acceptable programming effort.

3. Fixture Building:
Unless otherwise specified we will assign a standard AGILENT 3070 short wire vacuum fixture type “SMALL”. The software generation will be done using the default parameters of the AGILENT 3070 test system. The fixture will be of type BOTTOM probing (no TOP-probing). The fixture will be ordered from the fixture builder of your choice according to your specifications and profile. The fixture will be ordered by us and offered to you as part of the project; we will care for the project coordination between program generation and fixture building.

4. Debug
After the fixture is built we will receive it for further testprogram development:

1. probe contact test (test "pins")
2. fixture verification for correct wiring
3. shorts test for all probed nodes (test "shorts")
4. Analog Incircuit test
5. TestJet or ConnectCheck tests
6. Digital Incircuit test
7. Analog_Functional test (Voltages, OpAmps, Oscillators)
8. Documentation of not testable components
9. Stability analysis (Board Grading)

The Debug will be preferably done on our own testsystem, as far as the configuration allows. Final debug, stability checks and test series will be done at customer site, since there the necessary boards are available. For successful stability check we need 5 verified “Golden Boards” with valid layout and reference status and free of failures.

For higher test stability we will increase the tolerances (+2% for resistances, +3% for capacitors and + 10% for coils and inductors) as long as the devices are not specified for high accuracy (e.g. reference voltage generation).

In Debug we will implement full pintoggle tests as far as topology or node access allows. We will try to implement "Present&Alive" tests (at least one pin toggled) for TestJet/VTEP or ConnectCheck tested digital devices and full pintoggle tests for all smaller devices not in the library as far as the effort does not exceed 1h per device. A datasheet needs to be provided by the customer on request. Any further library development will be separately quoted.

During program generation and debug we will care for high measuring speed, but we cannot predict the test time, since it depends very much on DUT, topology and testsystem.

For adaptation to the manufacturing environment we will use the customers "testmain" if provided, otherwise the AGILENT standard testmain.

Documentation
Documentation will be supplied as comments in the test files, in the testplan and as docu-files:

- DOKU/README (general remarks and comments ...)
- DOKU/a_tests (unpowered ICT Testlines)
- DUKU/*.rpt (standard board grading reports)
- DOKU/testcoverage.rpt (standard AGILENT 3070 coverage report)

A separate documentation on paper (listing) will not be provided.

Final Acceptance:
For investigation of test coverage and program stability we will use the AGILENT 3070 standard Tools (TestCoverage, Board Grading). Debug of unpowered ICT will be finished with a successful Board Grading run as acceptance criteria for stability.

In Digital and Analog_Functional all tests will be examined and the test vectors activated as far as possible. Stability Check of powered tests is considered as successful if at 100 runs with one board all tests are PASS.

The series adaption will be done on your test system using max. 30 boards from running production, i.e. with normal failure spectrum. If a sufficient number of boards cannot be provided then the series adaption will be done using the available boards.

The final acceptance of the test program will be declared after successful stability check, series adaption and documentation review. With final acceptance the responsibility for software maintenance will be transferred to the customer.

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Schedule / dates:
We expect to do the data entry of 1 board per week. About 1-2 weeks after reception of the order and valid material the fixture building may be started. That may take 2...6 weeks depending on type and size of fixture. When receiving the fixture we can begin with fixture verify, debug and stability checks which may take another week.
After that we can come onsite for 1...2 days of installation - depending on remaining digital due to our reduced config. Some time for shipment and for the always happening unexpected may be added.
We will start program generation immediately after reception of the order and of the complete set of requested documentation, data and materials.

Detailed project planning will be discussed and agreed between the customer, fixture builder and us.

Conditions for Testsystem- and Parts delivery
Any material will be configured by us according to customers premises and will be checked by a diagnostics run for DIAGNOSTICS PASS. Any transports will be done by us or by a transporter ordered from us.

After delivery the hardware will be installed together with the customer. The installation will be terminated by another diagnostics run. With Diagnostics PASS all responsibility will be transferred to the customer. In case of Diagnostics FAIL we will try to repair the testsystem or provide a replacement as far as available in our stock. In case a repair is not possible or spare parts in our stock not available we take the material back and the deal will be cancelled. All our cost of transports and installation work summarized until then will be covered by us but any further reclaims are excluded.

Warranty:
With final acceptance or at latest with commercial use of the testprograms the warranty starts and an invoice can be issued. The warranty covers that the delivered software was generated with the required expertise according to the specifications defined in the quote. This warranty is limited to that we will correct any program generation or debug faults caused by us; any further liability or warranty is excluded. The duration of this warranty is 6 months.

We assume the data provided by the customer are complete, valid and reflecting the actual state of board layout and documentation. Additional expenses and effort resulting from changes after programming start or from inconsistencies between board, schematics, specifications and CAD-data can be charged for separately.

We want to point out that, although we always watch out for careful treatment, due to the nature of test development there is always a risk of damaging boards, either mechanically during fixture building or electrically during debug. We recommend to our customers to not use the debug boards for regular production anymore because we cannot take any responsibility for hidden damages.

Prices and terms of payment:
All prices will be defined in the main part of the quotation.
Tax, customs or transport costs are not included.
Any bills shall be payed within 10 days after rendering of invoice without deduction.
If there's a project delay then an invoice of partial amounts can be charged according to project progress. The quotation is valid for a duration of 30 days.