DT Trigger Server – Status and Plans

Tests over TSS ASIC prototypes are successfully finished!

TSMS and TSMD programming code is almost ready!

New Prototype of Server Board delivered …test started!

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<td>Production submission</td>
<td>Dec 01</td>
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<tr>
<td>TSS Asic</td>
<td>Begin delivery</td>
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<td>TSS Asic</td>
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<tr>
<td>TSMS, TSMD</td>
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<tr>
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TSS test system

TSS Asic prototype
Alcatel 0.5 µm CMOS
Produced through Europractice

Piggy board mounted on a
Pattern unit emulating Traco input
And checking output
TSS prototypes full test

- 13 Prototypes have been tested
- Core tests: Frequency vs. $V_{cc}$ have been performed

TSS work up to 66 MHz in the whole $V_{cc}$ range we tested at 20 deg.

Applying Temperature derating factors, we expect the TSS will work up to 80 deg., i.e. up to the expected Minicrate max $T < 50$ deg.

Monitoring and control features have been checked:
- Serial access (JTAG) -> successfully tested
- Parallel access (Parallel Interface) -> successfully tested up to 10 MHz
- Spying and Test features (Snap and Test reg.s) -> successfully tested
TSS production tests

Test will be performed in Bologna with the test jig setup for prototypes.

Performances of the test system:

- Test sorting in different setups with a reduced set of patterns (10 s @ 70 Kevt/s)
- Test JTAG access (<1 s @ 150 kHz)
- Test Parallel Interface Access (<1 s @ 1 MHz)
- Bookeeping

Delivery consists of 2700 chips.

Process yield 70%
Package yield 90%
(conservative estimate)

To have 1200 TSS working, we need to test ~ 2000 chip.

4 weeks!

With a working time of 4 hour/day.
Production test system

Test of the Sorting Core
With random pattern
In different configurations

C and C++
Software test system

Spying and Test feature
(snap and test reg.s)

Monitoring and control
With JTAG and Parallel Interface
TSM and Server Board – New Prototype

- **PCB**: 16 layers!
- **TSM side**
- **Reminder**: TSM has implemented with 3 pASIC Actel A54SX32 0.35 µm CMOS
- **TSMDs**
- **Chamber Controller side**

Dimensions:
- 9.5 cm height
- 20.6 cm width

**CMS Week - 4/03/02**

R. Travaglini
TSM and Server Board tests

Adapter Board

4 Pattern Unit (512 bits @ 40 MHz) Emulate input pattern from TSSs and receive output.

Server Board

Electrical test done! Software for intensive test is almost ready. Tests are going on!