

DØ SMT Status Report

Milestones

- ❑ 2-degree ladder production
 - 11/03/99 9-chip ladder fabrication 20% complete
 - Met on time
- ❑ SS-ladder production
 - 11/16/99 3-chip ladder fabrication complete
 - **Not met - estimate 1/24/00**
 - Stopped to concentrate on repairing problems with 6 and 9-chip fixtures
 - Waiting for final set of hdi's and detectors
 - Not critical path
- ❑ 11/5/99 M3 - F Wedge production begun
 - Started at low rate week of 11/8/99
 - » Problems with low yield of hdi hybrids

Sensor Delivery

Micron Visit Dec. 8/9/10 (R. Lipton, P. Rapidis)

□ 2-degree detectors:

- sensor production proceeding well
- Yield of 60-70% should be maintained
- Full delivery of order anticipated in April

□ F disk detectors:

- Proceeding okay
- Yield of 50-60%
- Currently 68 wafers in production, 35 needed
- Completion of order for 125 detectors expected by March
- First test results of F disk detectors from Eurisys expected this month. Delivery of first detectors in January for complement

□ 90-degree detectors:

- Observed non-uniform depletion voltage across sensor
 - » only 6" wafers are affected
 - » origin unclear
 - » ~23% of CDF detectors affected; same or less for DØ
- Test are being implemented to catch defect
- Huge bulge (~600 sensors) in production pipeline

- Micron Staff stretched extremely thin
- No timely completion is major worry. Micron will shuffle resources. DØ will add additional manpower at Micron to test devices
- Production of an additional 50 wafers is being started. Worry remains that we may have to accept devices that are flawed.

Ladder / Wedge Production

❑ 2-degree ladders

- Proceeding okay
- Two fixtures qualified for production and yield ladders within alignment criteria
- All produced ladders are remeasured
- tightening up of QC - real time QC of ladders as they are produced
- Idea of bonding devices before rails are glued is being pursued; would reduce production time by ~ factor of 2
- Initial results look promising

❑ SS ladders

- Final set of hdi's being laminated

❑ 90-degree ladders

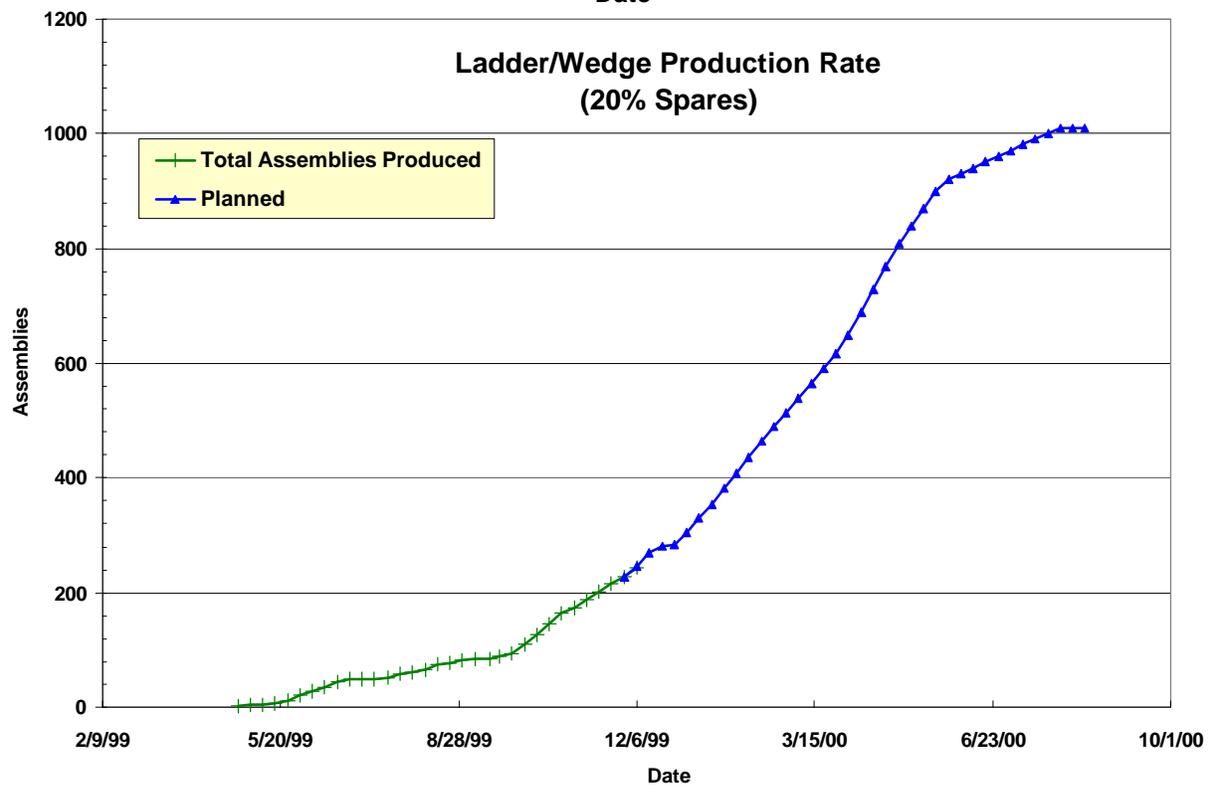
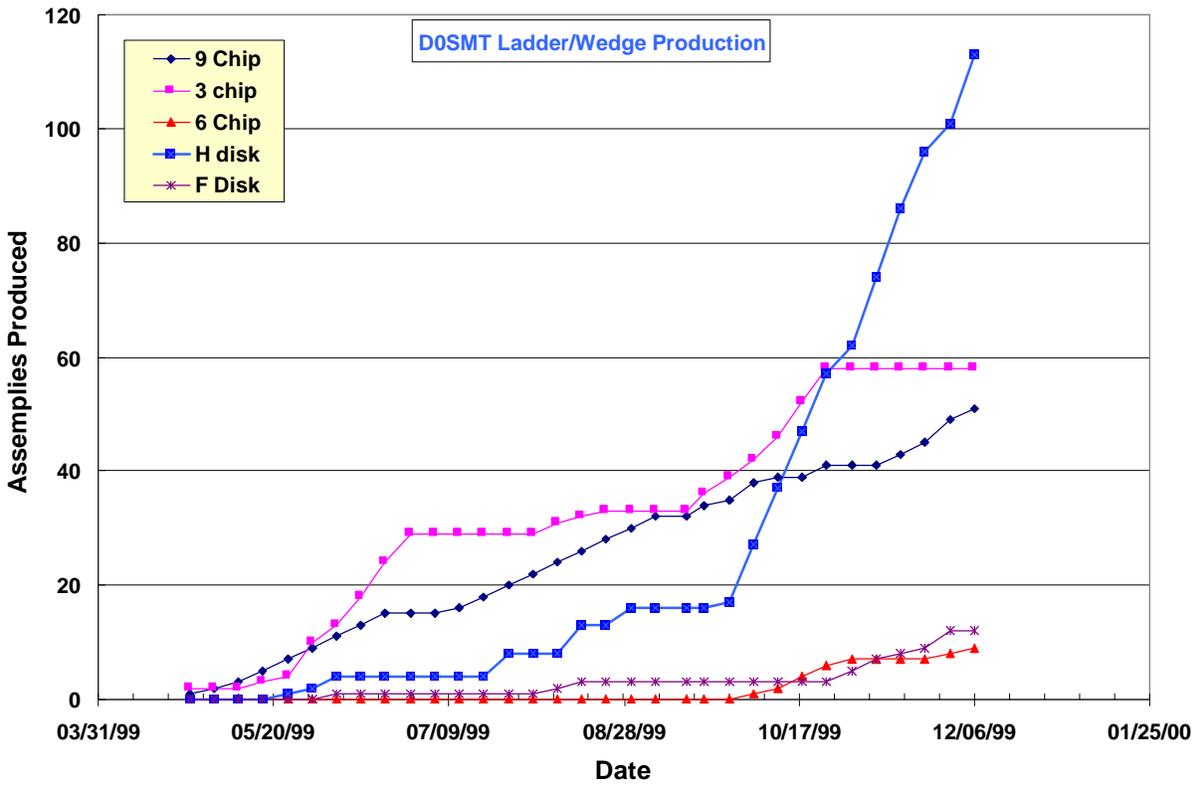
- Visual scan for defects (p-stop touches n+ implant) of sensors is continuing
- work continues on qualifying fixture
- 9 ladders built to date

❑ F wedges

- Quality control of hdi's (not just for F disk) major problem
- Plan to produce 12 wedges before the end of the year

❑ H wedges

- Solid production and testing: 10-12/week
- ~ 85% yield
- Will run out of parts in January



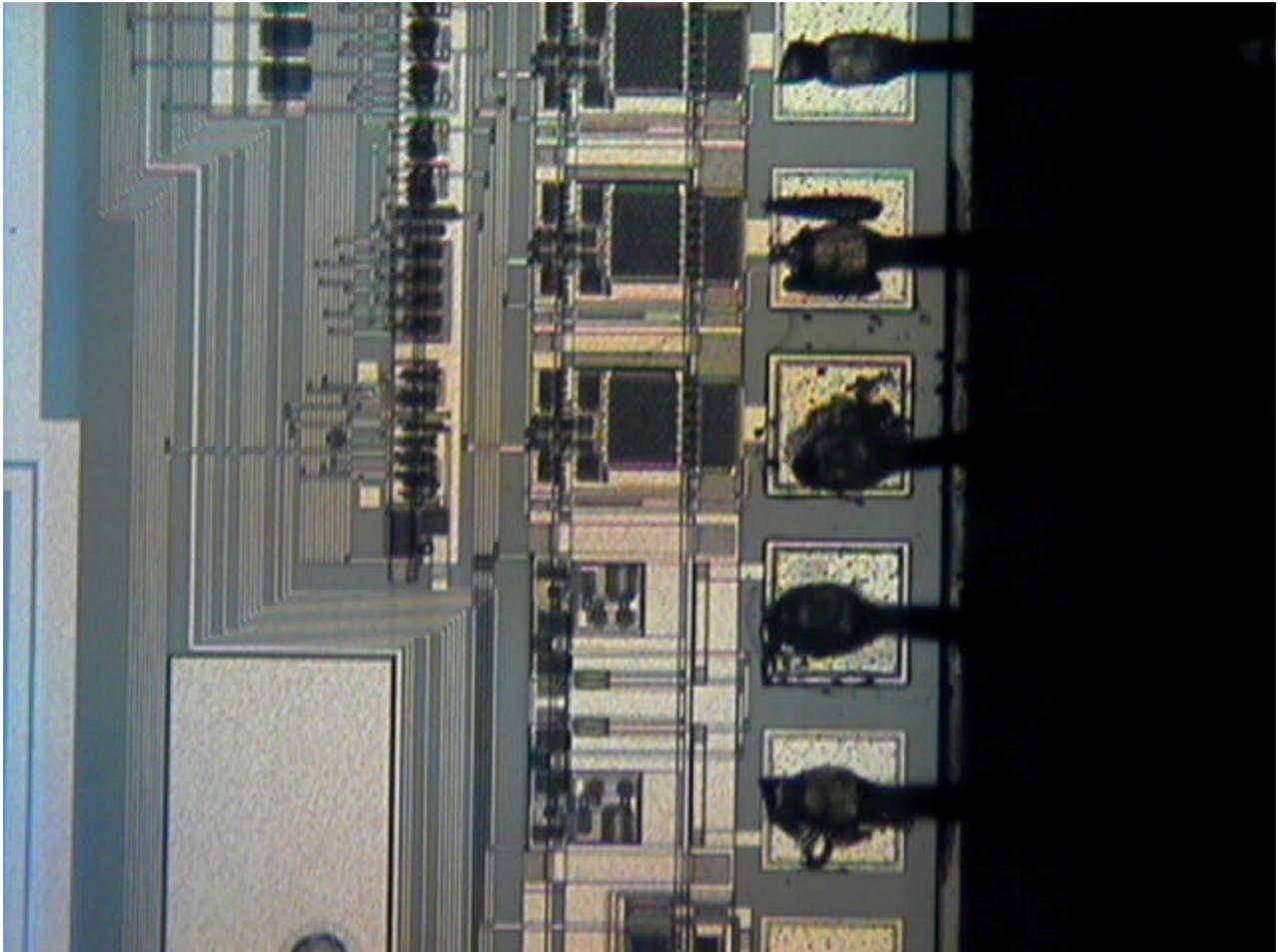
HDI Status

- ❑ HDI stuffing done at Promex (Santa Clara, CA) and is a major problem
- ❑ Yield fluctuates: 60-90%
- ❑ DØ tries to have a person at the company each time a batch of hdi's is sent but ...
 - 38 H disk hdi's sent to Promex
 - M. Kubantsev at Promex to oversee stuffing
 - On Tuesday he leaves for Fresno to test some hdi's
 - That day Promex "looses" 14 F-disk hdi's.
- ❑ Promex was recently qualified as an ISO - 9000 company, i.e. "rigid quality standards"
- ❑ We are in the process of qualifying another vendor, Silitronics, but

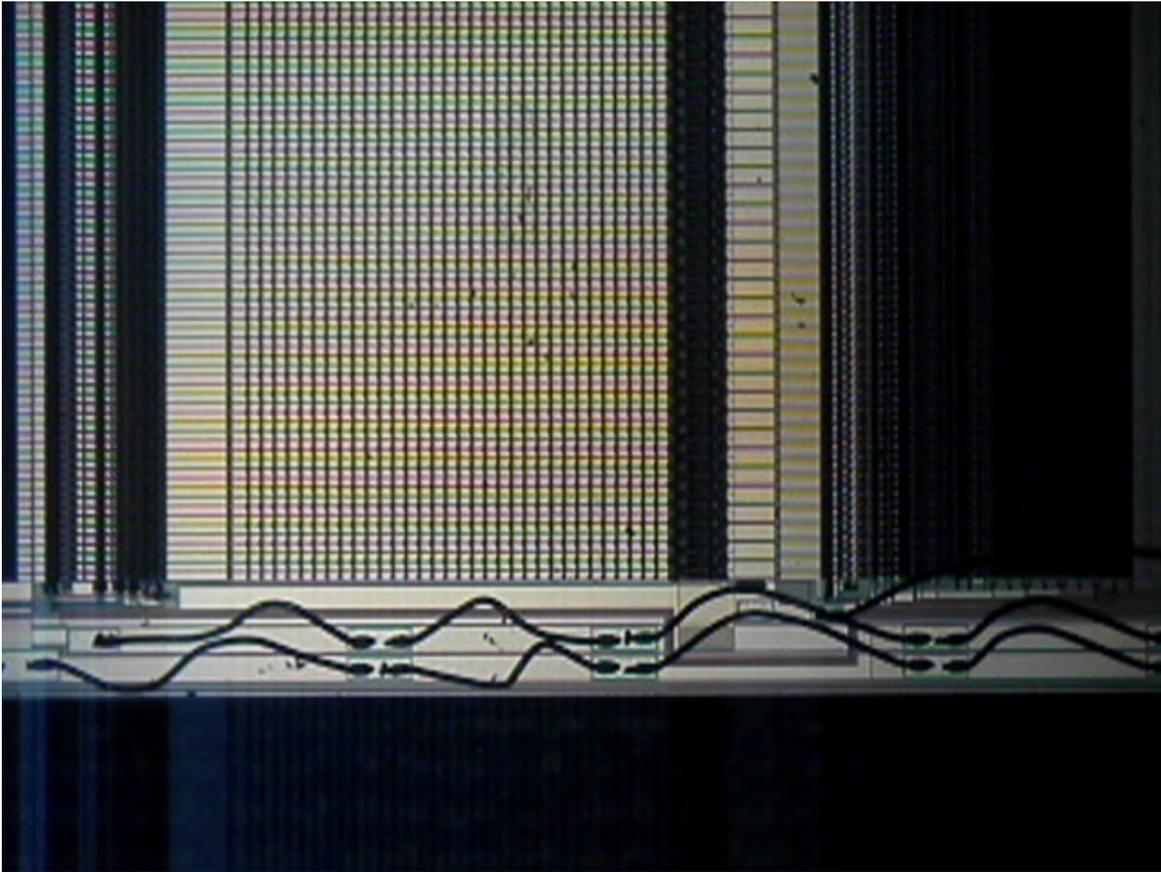
Because of the very low yields, more parts will have to be reordered.

Silitronics

- Recently received 20 stuffed H disk hdi's



Silitronics



- ❑ Out of 20 sent:
 - 7 work
 - 4 read out, but at least one dead chip
 - 1 has gain problems
 - 3 have shorts
 - 5 don't download
- ❑ Second batch looks much better, though

Testing

- ❑ Regular reviews of testing results among various subgroups
- ❑ Modest but steady progress

10% Test and Cosmic Ray stand

- ❑ First set of low mass cables received and being checked
- ❑ Final version Interface Board to arrive next week; nearly on schedule
- ❑ First pass of full online monitoring software available

Manpower

- ❑ Opening for Engineering Physicist:
 - one candidate interviewed: excellent
 - second candidate to interview Monday
 - it would be very helpful if we could find a way to hire both.