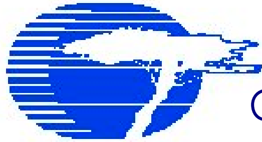


Outline

Date: May 31, 2006
Re: Die Retest Project
To: Memo Log
Author: Ken Freed
File#: KXF-
Category:

CC: <Distributed Electronically>

- Outline
- Executive Summary
- Enhancements & Bugs Fixes
- Are the Maps Still Good?
- Spec Updates
- Scheduling Status
- Release Schedule
- Approvals

Executive Summary

What this is:

A revision of the VT2100-KLA1007 prober die retest software to work with EG4080 probers.

A set of follow-on enhancements & minor bug fixes common to VT-KLA and VT-EG Die Retest Software

Die Retest Progression:

- Feb 7, 2006: VT-KLA Die Retest Software was approved for production in PCR4.
  - PCR4 documented in memo KXF-158
  - The 20 VT-KLA tools were retrofitted the following week.
- April 9, 2006: VT-KLA Die Retest Software upgrades installed
- This release is for VT-EG probers
  - Planning and schedule are documented in memo KXF-162 ("CTI Automation Project Prioritization & Planning 15Mar06")

Purpose of this Meeting:

To get approval for soft turn-on, i.e.,

- to run the updated die retest software on rsc'd wafers among seven VT2100-EG4080 testers.

Enhancements & Bug Fixes

These are changes to the VT-KLA prober code base have been incorporated into the VT-EG s/w. We will install them on VT-KLA probers after they are running in production on the VT-EGs

- following correlation experiments/maps and a PCR for the VT-KLAs.

DPRC.EXE Changes:

- DPRC.EXE transfers files between tool and server, and interfaces to the user. The same dprc.exe program runs on both VT-KLA and VT-EG testers
- The 06Apr06 DPRC.EXE release has been running in production on 20 VT-KLA testers since April 19, 2006

```
/* 06Apr06 KXF                New release - lots of changes                                */
/* 21Apr06 KXF  lotmenu.c     Fix indexing problem if less than a whole (scrolled) page of planfiles */
/* 24Apr06 KXF  summary.c     Change printf's to print_and_log_msg in CreateMosproSummary      */
/*              lotmenu.c     Fix bug if less than one scroll screen worth of wafers to recover */
/*              waflist.c                                                                  */
/* 25Apr06 KXF  summary.c     put_red_popup if we are aborting wafer map processing          */
/*              reload.c                                                                   */
/* 26Apr06 KXF  nmalloc.c     Convert more put_red_popup calls to print_and_log_msg          */
/*              summary.c     CreateMosproSummary make planfile name all small letters       */
/*              lotmenu.c     get_user_input - vary prompt width to allow more input without */
/*                              overrunning screen.  Need for longer plan path entry         */
/*              mospro.c      Longer plan path entry                                         */
/* 23May06 KXF  lotmenu.c     Substitute manually edited probe card id info into mospro file if */
/*              summary.c       probe card id is not automatically read                      */
```

(Lines 23May06 KXF lotmenu.c / summary.c are printed in bold.)

Engineering enhancements in bold

RDPIO.EXE & EGIO.EXE Common Changes

- RDPIO.EXE interfaces to the KLA 1007 probers
- EGIO.EXE   interfaces to the EG   4080 probers

The 18Apr06 RDPIO.EXE release has been running in production on 20 VT-KLA testers since April 19, 2006. Changes since then (which have been incorporated into EGIO.EXE) have been:

```
/* 11Apr06 KXF              New release - lots of changes                             */
/* 18Apr06 KXF main.c       put sort flow char into the logfile name                  */
/*             rdpio.c                                                                */
/* 21Apr06 KXF scrnio.c     Revise get_user_choice6 to handle from 2 to 6 choices     */
/*             scrnio.h     Put a 3 choice selection in serio.c::CheckWaferSites, rather  */
/*             serio.c          than a put_foreground_popup and hardcoded choice      */
/* 26Apr06 KXF rdpio.c      Dont exit program if LoadSetupFromDisk fails              */
/* 28Apr06 KXF retest.c     New global retest limits RE_TEST_LIMIT <no_of_retests> <percent>*/
/* 12May06 KXF rdpio.c      Call isWafermap_displayed before updating top of map with  */
/*                              DPRC Process Summary message.                         */
/*             serio.c      Eliminate string_toupper subroutine, since not used.      */
/*                              Using strlwr in the logic instead                     */
```

Engineering enhancements in bold

Are the Maps (coming from the VT-EG testers) Good? - Yes

Ran several - six wafer correlations:

1) 8C21001AT - Lot 2611369 Wafers 1 through 6 on VT18 under new software, then ran the same wafers on the same tool under old software

Wafer	Total Sites	Total Shift	%Shift
2611369-01	2692	102	3.79%
2611369-02	2692	73	2.71%
2611369-03	2692	30	1.11%
2611369-04	2692	39	1.45%
2611369-05	2692	109	4.05%
2611369-06	2692	141	5.24%

Retests:

Ran on VT18 (EG Quad Prober) under new software (with retest of bin 10s), then ran the same wafers on the same tool under old software (without retest)

Wafer	**% Shift**	**Total Retests**	**No of Bincode Changes upon Retesting**	**Bin Code Change Breakdown** no of changes: bincode->bincode
2611369-01	3.79%	41	41	40: 10->1 1: 10->8 1: 12->1
2611369-02	2.71%	0		
2611369-03	1.11%	0		
2611369-04	1.45%	0		
2611369-05	4.05%	0		
2611369-06	5.24%	0		

2611369-01

Total Sites	2692
Total Shift	102
% shift	3.79%

Change	Total	% shift
1 to C	37	1.37%
_ to 1	27	1.00%
8 to 1	10	0.37%
1 to _	7	0.26%
1 to 8	5	0.19%
C to 1	3	0.11%
. to _	2	0.07%
1 to .	2	0.07%
1 to 7	2	0.07%
_ to .	1	0.04%
_ to 7	1	0.04%
_ to D	1	0.04%
1 to D	1	0.04%
7 to _	1	0.04%
8 to 7	1	0.04%
8 to D	1	0.04%

Total Site	2692
Total Shif	73
% shift	2.71%

Change	Total	% shift
1 to	35	1.30%
1 to C	14	0.52%
1 to 8	8	0.30%
8 to 1	5	0.19%
C to 1	4	0.15%
8 to .	2	0.07%
. to 8	1	0.04%
1 to D	1	0.04%
7 to	1	0.04%
8 to 7	1	0.04%
D to 8	1	0.04%

2611369-02

2611369-03

Total sites	2692
Total shift	30
% shift	1.11%

Change	Total	Shift %
1 to C	10	0.37%
C to 1	10	0.37%
8 to 1	4	0.15%
1 to 8	3	0.11%
1 to .	1	0.04%
8 to .	1	0.04%
D to 8	1	0.04%

Total Sites	2692
Total shift	39
% Shift	1.45%

Change	Total	% shift
1_to_C	13	0.48%
8_to_1	9	0.33%
C_to_1	7	0.26%
1_to_8	6	0.22%
1_to_D	2	0.07%
7_to_.	1	0.04%
8_to_7	1	0.04%

2611369-04

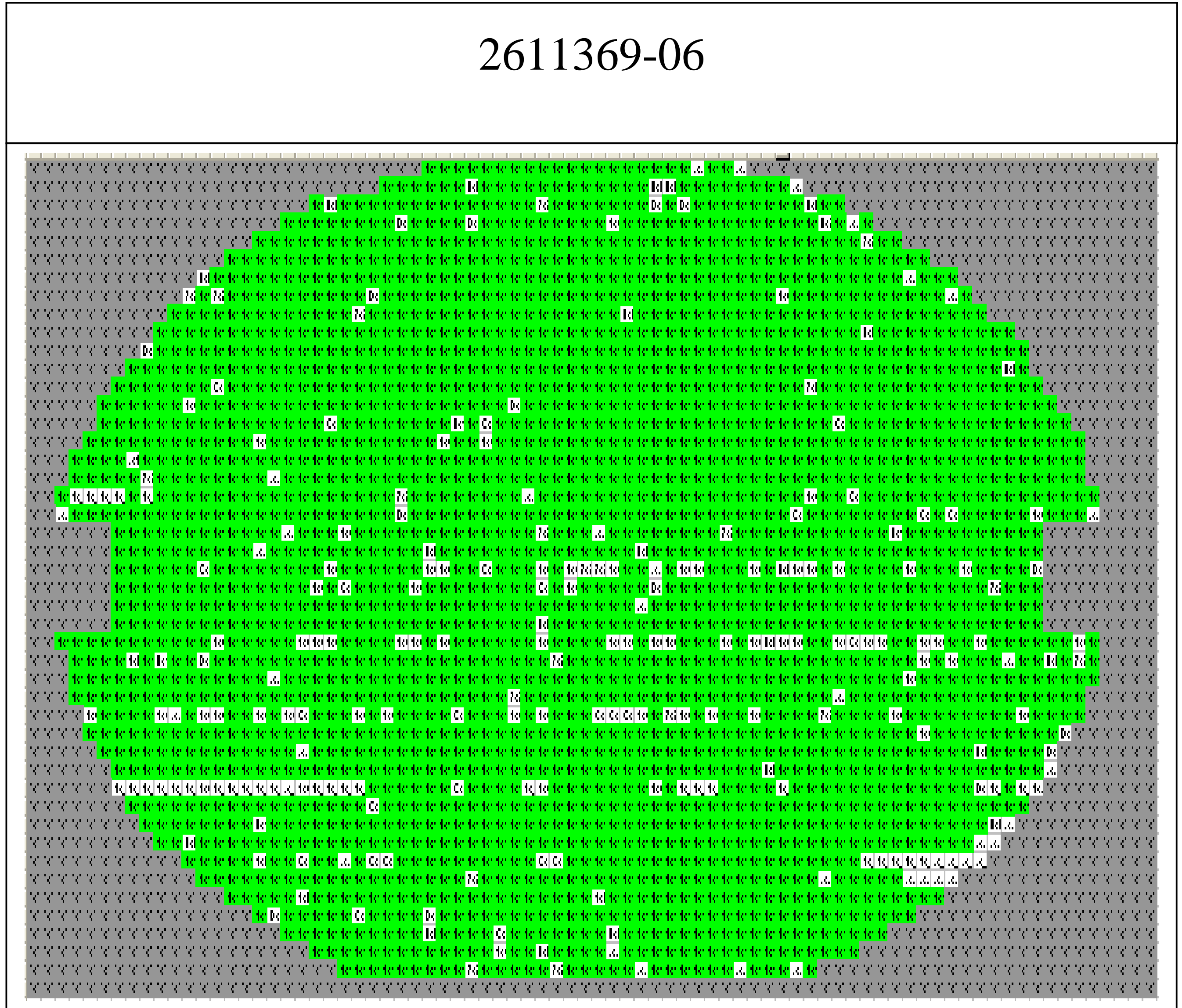
Total Sites	2692
Total Shift	109
% Shift	4.05%

Change	Total	% Shift
1_to_	50	1.86%
C_to_1	26	0.97%
1_to_C	21	0.78%
1_to_8	3	0.11%
8_to_1	3	0.11%
1_to_7	1	0.04%
1_to_D	1	0.04%
7_to_	1	0.04%
8_to_	1	0.04%
8_to_D	1	0.04%
D_to_7	1	0.04%

2611369-05

Total sites	2692
Total shift	141
% shift	5.24%

Change	Total	% shift
1 to C	74	2.75%
1 to	32	1.19%
C to 1	17	0.63%
. to	5	0.19%
8 to 1	4	0.15%
1 to 8	3	0.11%
. to 1	1	0.04%
1 to .	1	0.04%
1 to D	1	0.04%
7 to D	1	0.04%
8 to 7	1	0.04%
D to 8	1	0.04%



2) 8C21001AT - Lot 2611420 Wafers 1 through 6 on VT30 (VT-EG quad with retest of bin 10s), then ran the same lot on VT08 (VT-KLA quad with existing die retest s/w retesting bin 10s)

Wafer	Total Sites	Total Shift	%Shift	Notes
2611420-01	2692	35	1.30%	
2611420-02	2692	29	1.08%	
2611420-03	2692	270	10.03%	poorly yielding wafer
2611420-04	2692	268	9.96%	bin 8 striping problems
2611420-05	2692	68	2.53%	
2611420-06	2692	63	2.34%	

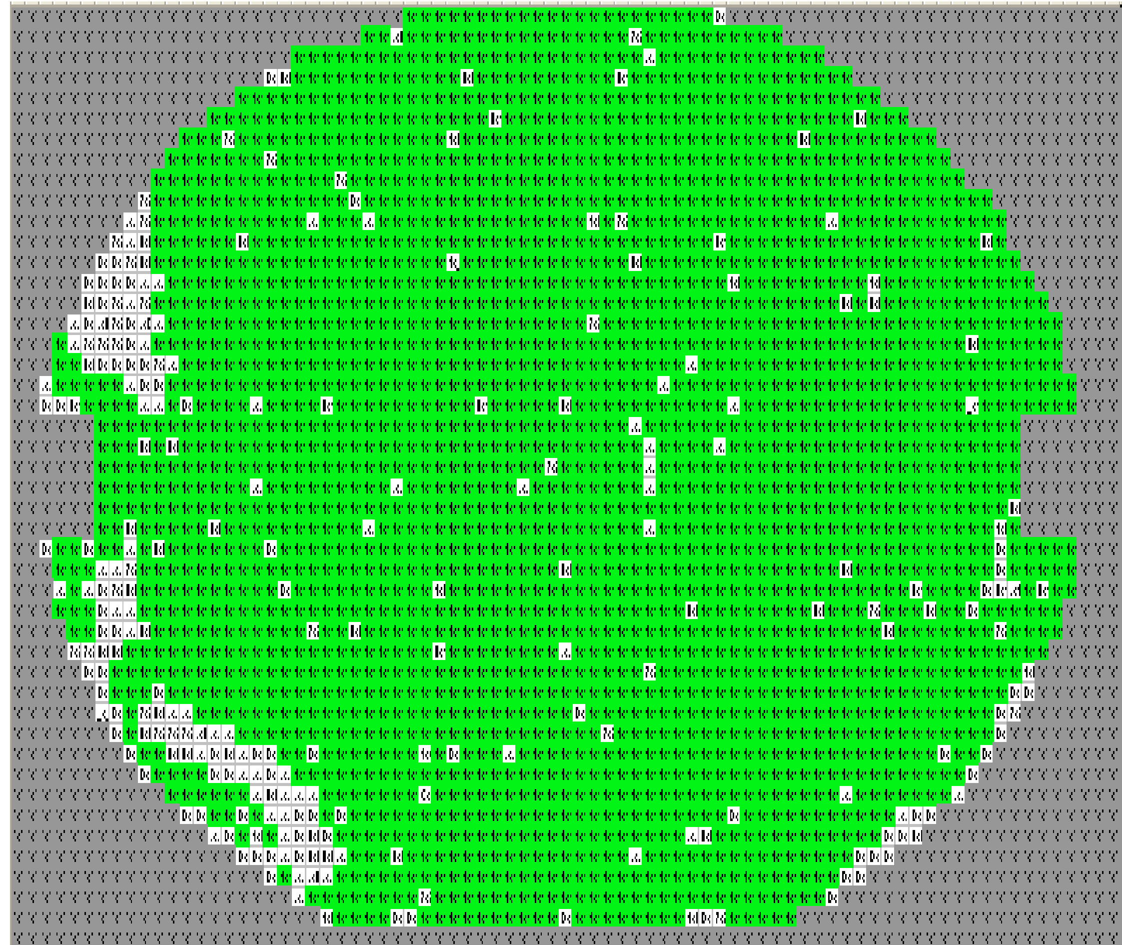
Retests of Bin 10s on Quad Probers:

		VT-EG (new s/w on VT30)			VT-KLA (existing s/w on VT8)		
Wafer	**% Shift**	**Total Retests**	**No of Bincode Changes upon Retesting**	**Bin Code Change Breakdown**	**Total Retests**	**No of Bincode Changes upon Retesting**	**Bin Code Change Breakdown**
2611420-01	1.30%	5	4	4: 10->1	1	0	
2611420-02	1.08%	0			0	0	
2611420-03	10.03%	39	41	14: 10->1 22: 10->7 5: 12->1	0	0	
2611420-04	9.96%	103	98	88: 10->1 5: 10->8 3: 8->1 1: 12->1 1: 10->7	4	4	4: 10->1
2611420-05	2.53%	80	74	70: 10->1 2: 10->7 2: 10->8	10	9	9: 10->1
2611420-06	2.34%	89	88	1: 13->8 80: 10->1 4: 10->7 2: 10->8 1: 8->1	4	2	2: 10->1

2611420-01

Total Sites	2692
Total Shift	35
% Shift	1.30%

Change	Total	% Shift
8_to_1	10	0.37%
1_to_8	6	0.22%
._to_8	4	0.15%
1_to_D	4	0.15%
D_to_.	2	0.07%
D_to_8	2	0.07%
._to_1	1	0.04%
._to_D	1	0.04%
_to_1	1	0.04%
1_to_	1	0.04%
1_to_C	1	0.04%
C_to_1	1	0.04%
D_to_7	1	0.04%



2611420-02

Toatl sites	2692
Total Shift	29
% Shift	1.08%

Sum of Shift Total		
Change	Total	% shift
1_to_8	8	0.30%
D_to_8	4	0.15%
._to_8	3	0.11%
8_to_1	3	0.11%
C_to_1	3	0.11%
1_to_D	2	0.07%
7_to_D	2	0.07%
._to_7	1	0.04%
._to_D	1	0.04%
C_to_D	1	0.04%
D_to_7	1	0.04%

2611420-03

Color Code
Red:-1toC

Total sites	2692
Total Shift	270
%shift	10.03%

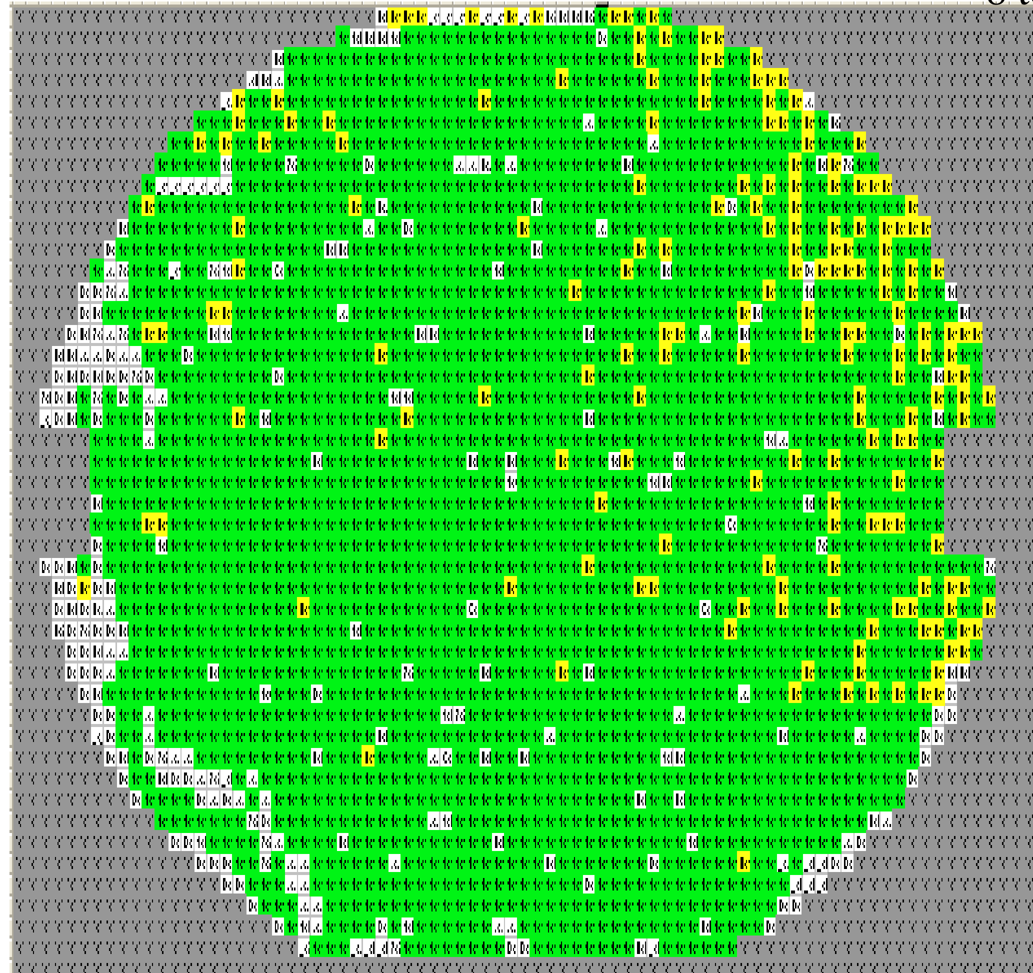
Change	Total	% Shift
1 to C	88	3.27%
C to 1	75	2.79%
8 to 1	56	2.08%
to 7	23	0.85%
7 to D	7	0.26%
D to 1	5	0.19%
1 to 8	4	0.15%
. to 1	3	0.11%
to 1	2	0.07%
7 to 8	2	0.07%
. to 8	1	0.04%
to 8	1	0.04%
1 to 7	1	0.04%
7 to 1	1	0.04%
8 to D	1	0.04%

2611420-04

Color Code
Yellow
8 to 1

Total sites	2692
Total Shift	268
% shift	9.96%

Change	Total	% shift
8_to_1	188	6.98%
1_to_8	22	0.82%
__to_1	13	0.48%
__to_D	9	0.33%
8_to_D	9	0.33%
C_to_1	5	0.19%
8_to_7	4	0.15%
__to_.	3	0.11%
1_to_D	3	0.11%
8_to_.	3	0.11%
1_to_C	2	0.07%
D_to_1	2	0.07%
D_to_7	2	0.07%
._to_8	1	0.04%
__to_7	1	0.04%
7_to_D	1	0.04%



2611420-05

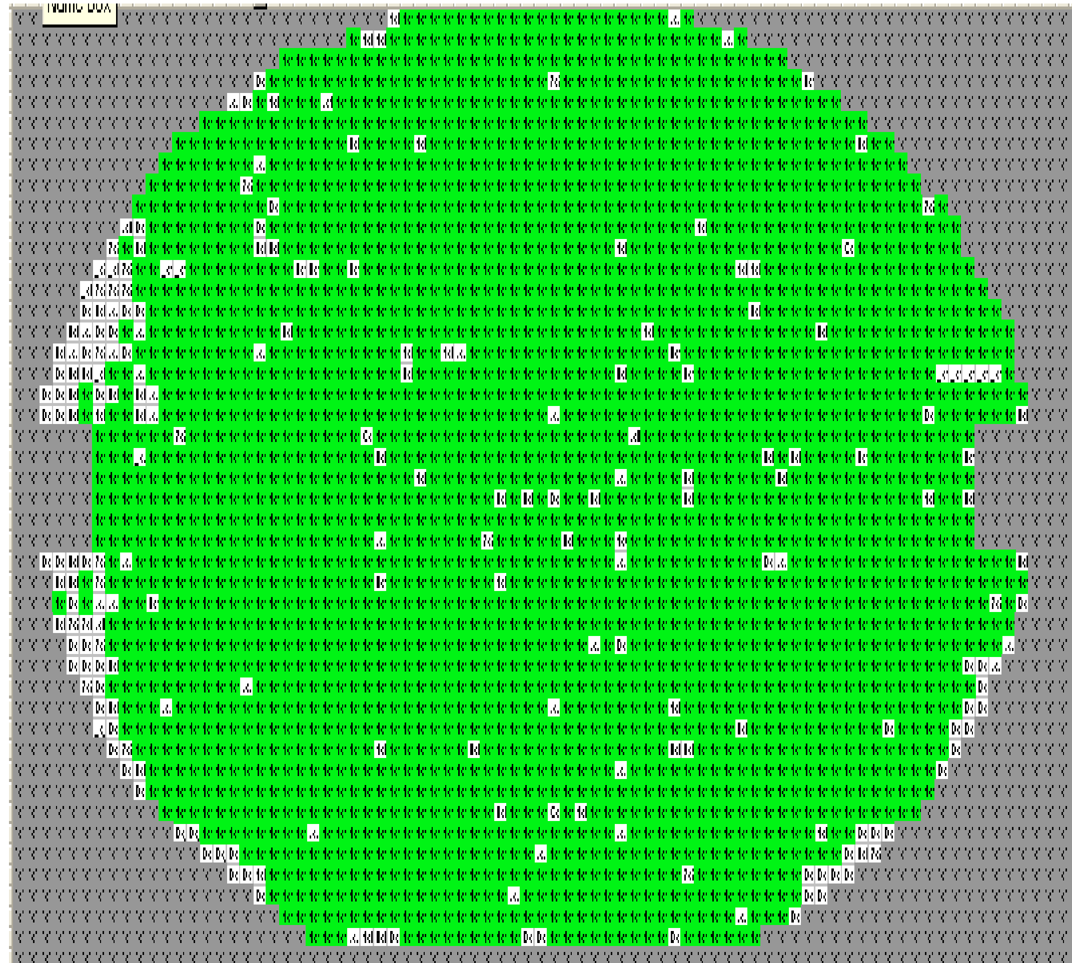
Total sites	2692
Total shift	68
% shift	2.53%

Sum of Shift Total		
Change	Total	% shift
1_to_8	18	0.67%
_to_1	11	0.41%
8_to_1	11	0.41%
_to_D	6	0.22%
_to_.	4	0.15%
C_to_1	4	0.15%
1_to_D	3	0.11%
._to_8	2	0.07%
_to_8	2	0.07%
D_to_8	2	0.07%
._to_1	1	0.04%
_to_7	1	0.04%
1_to_C	1	0.04%
C_to_8	1	0.04%
D_to_7	1	0.04%

2611420-06

Total sites	2692
Total shift	63
% shift	2.34%

Change	Total	% shift
1_to_8	21	0.78%
8_to_1	10	0.37%
_to_1	7	0.26%
._to_8	3	0.11%
_to_D	3	0.11%
C_to_1	3	0.11%
D_to_	3	0.11%
D_to_7	3	0.11%
D_to_8	2	0.07%
._to_1	1	0.04%
_to_.	1	0.04%
_to_7	1	0.04%
1_to_C	1	0.04%
1_to_D	1	0.04%
7_to_8	1	0.04%
8_to_D	1	0.04%
D_to_.	1	0.04%



Spec Updates

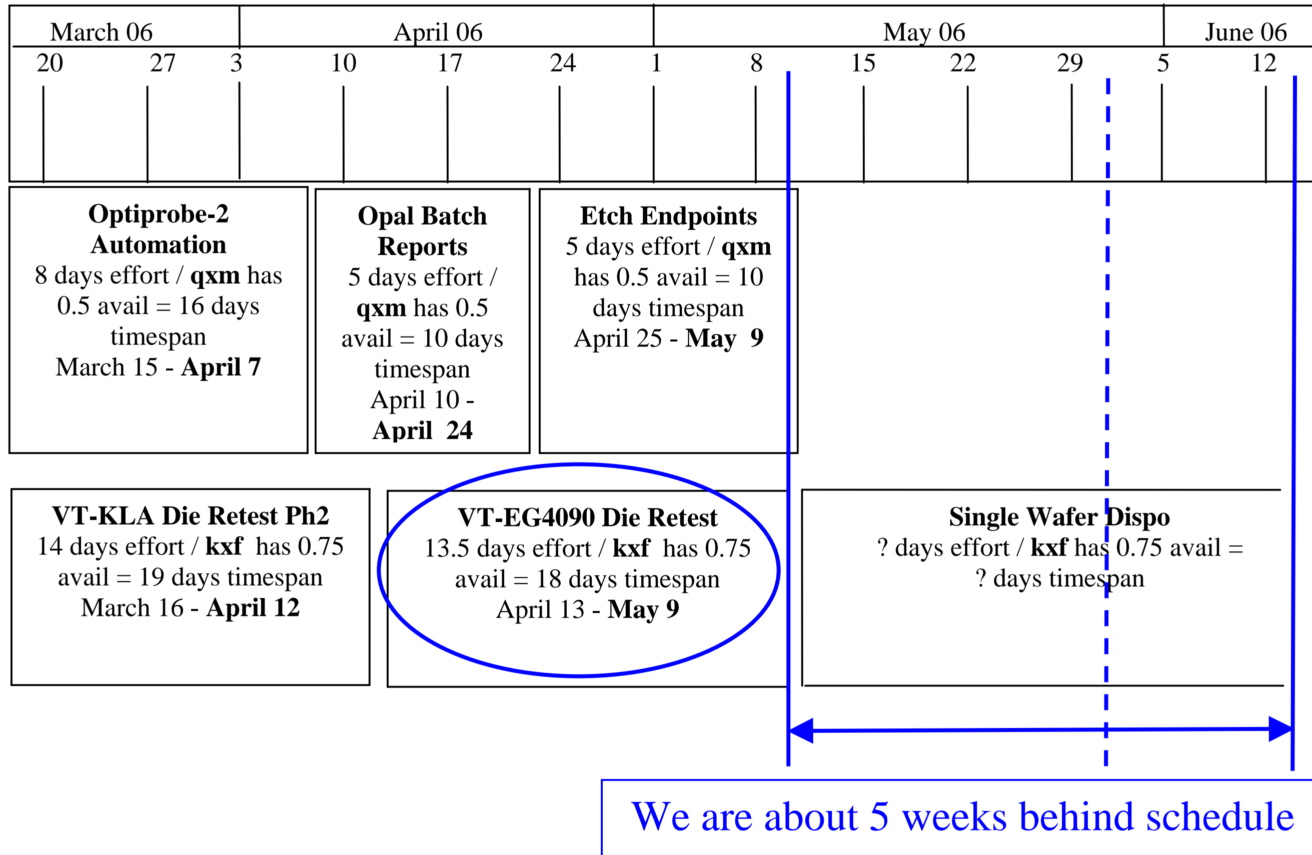
01-02824   Fab2 Versatest V210X with EG4080 Operation Procedure

- Is in signoff under ECN 463329
- The sections on die retest is a duplicate of

  01-02682   Fab2 Versatest V210X Operations Procedure
- No new training, certification, etc. updates are needed.

Schedule Status

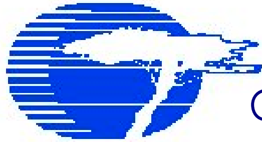
(original schedule from memo KXF-162)



We are about 5 weeks behind schedule

VT-EG Software Release Schedule

What	Who	OS	CS	Notes
Hold PCR3	KXF	5/08/06	5/31/06	DONE
Retrofit first VT-EG	KXF		6/01/06	We will know which wafers went through the retrofitted software
Retrofit second VT-EG	KXF		6/05/07	If no significant issues with first VT-EG
Retrofit third VT-EG			6/08/07	If no significant issues with first and second VT-EGs
Hold PCR4, review any issues	KXF		6/14/06	Might just issue a memo for approval if no issues and nothing to discuss
Retrofit remaining 5 VT-EG tools	KXF	5/10/06	6/16/06	Assumes no significant issues and no need to run another set of correlation maps to qualify software changes



Signoff Sheet

Yield Engineering Manager	BYB	____________
Test Engineer Manager	BYB	____________
Sort Production Manager	PJX	____________
QA Manager	LHK (for BCK)	____________

Signoff handled through memo system approvals