Pixel Module Yield Model
Last Update: September 29, 1999

ICs		Detectors		Flex	
Yield(%)	Step	Yield(%)	Step	Yield(%)	Step
38.5%	Fab	100.0%	Fab	100.0%	Fab
99.5%	Ship	99.5%	Ship	100.0%	Inspect(in fab)
97.0%	Probe	95.0%	Probe	99.5%	Ship
99.5%	Ship	99.5%	Ship	99.0%	Cut
97.0%	Bump deposition	97.0%	Bump deposition	99.5%	Ship
99.5%	Ship	99.5%	Ship	95.0%	Mount components
97.0%	Inspection	97.0%	Inspection	99.5%	Ship
99.5%	Ship	99.5%	Ship	97.0%	Wire bond MCC
98.0%	Thin	97.0%	Dice	99.5%	Ship
99.5%	Ship	99.0%	Sort	97.0%	Probe/burn-in
98.0%	Dice	99.5%	Ship	99.5%	Ship
98.0%	Sort	99.0%	Inspect		
99.5%	Ship				
99.0%	Inspect				
Yield(%)	*32%*		*83%*		*86%*
	per die		*per tile*		*per flex*

Yield(%)	Optical Components	Yield(%)	Module Assembly	Yield(%)	Pigtails
87.0%	IC fab	99.5%	Flip chip/die	100.0%	Fab
99.5%	IC Ship	92.3%	Flip chip/module	100.0%	Inspect(in fab)
97.0%	IC Probe	99.5%	Inspect(X-Ray)	99.5%	Ship
99.5%	IC Ship	99.5%	Ship	99.0%	Cut
98.0%	IC thin	97.0%	Probe bare module	99.5%	Ship
99.5%	IC Ship	99.5%	Ship	98.0%	Mount components
98.0%	IC dice	98.0%	Attach flex	99.5%	Ship
99.5%	IC Ship	95.0%	Wire bond(with repair)	95.0%	Test/burn in
79.4%	*Opt. IC yield*	98.0%	Attach pigtail	99.5%	Ship
100.0%	Fiber fab	99.5%	Ship		
100.0%	Fiber ship	95.0%	Test/burn in		
95.0%	Fiber inspect/connect	99.5%	Ship		
95.0%	*Fiber ribbon yield*				
100.0%	Package fab				
99.5%	Package ship				
95.0%	Package inspect/test				
99.5%	Package ship		*75%*		*90%*
94.1%	*Package yield*		*per module*		*per pigtail*

99.5% Shipping yield

No of L1/2&diskmodules	1980
No of B-layer modules	273
No of L1/2&disk FE die	31685
L1/2&disk FE die/ wafer	130
No B-layer FE die	4368
B-layer FE die/wafer	130
Detectors/wafer	3
Number of optical die	2253
No optical die/wafer	1000
Total modules started	2993
Total L1/2&disk modules started	2630
Total B-layer modules started	363
Total L1/2&disk FE die required	132448
Total L1/2&disk FE wafers	1019
Total B-layer FE die required	18259
Total B-layer FE wafers required	140
Total optical ICs needed	2837
Total optical wafers needed	3
Total detector wafers	1204
Total flex needed	3047
Total optical pkgs needed	2652
Total opt fiber ribbon needed	2626
Total pigtails needed	2494
Flip chip modules	2993
Total bump IC	1159
Total bump detector	1204

20,42,56 staves, 2*[3x11+2*9]sectors
5% spare modules included
B-layer is not flex
Temic optimum yield assumed