

August 11, 2003

**New Orders are Haunted by the Ghosts of Old Nodes, While Storm Fears Threaten.**



**Sheet Revisions**

Climate Trends: 11-Aug-03 IC Inv: 11-Aug-03 Nodes: 11-Aug-03 BB Rto: 11-Aug-03 QtrFcst: 11-Aug-03  
 CPPI: 11-Aug-03 Ttl Cpcty: 11-Aug-03 Utilzn: 11-Aug-03 Eq & IC Rev's: 11-Aug-03 AnnFcst: 11-Aug-03  
 Photo: Chaco Culture National Historical Park, N.M Camera: Canon D60, 28-300mm zoom lens

**General Instructions**

For Spreadsheets:  
 1. For best viewing results, resize by changing size percentage to a size that fits within your monitor settings and limitations.  
 2. To paste into Microsoft PowerPoint (tm); click on chart, copy, and then paste into a PowerPoint slide.  
 3. Tabs are updated as indicated in rows 6 & 7 by highlighting text and date.

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Cameras Used by The Chip Insider to take the photos:

- Canon D60, 28-300mm zoom lens
- Canon D60, 100-400mm Canon zoom lens
- Nikon Coolpix 5700, Nikkor 8.9-71.2mm Lens
- Sony F-505V, Carl Zeiss zoom lens.

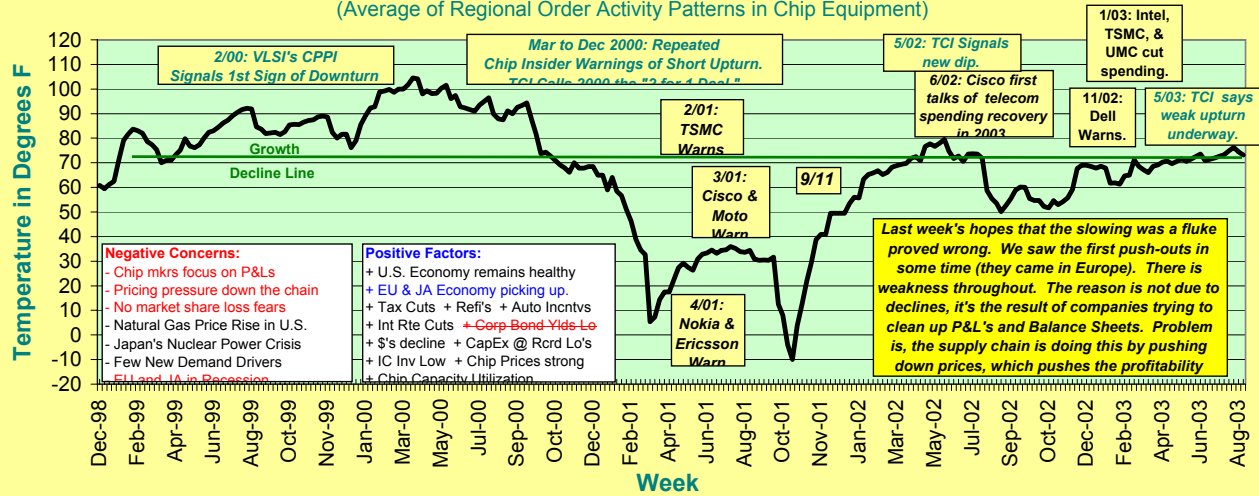
Locations:

- Photo: Montebello Open Space Preserve, CA
- Photo: Palo Alto Baylands Nature Preserve, CA
- Photo: Sacramento National Wildlife Refuge, CA

- Delete & Insert Photo
- Update Photo Label
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- Update Sheet Revisions
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- Title: The Chip Insider's Graphics File
- Hide Cursor

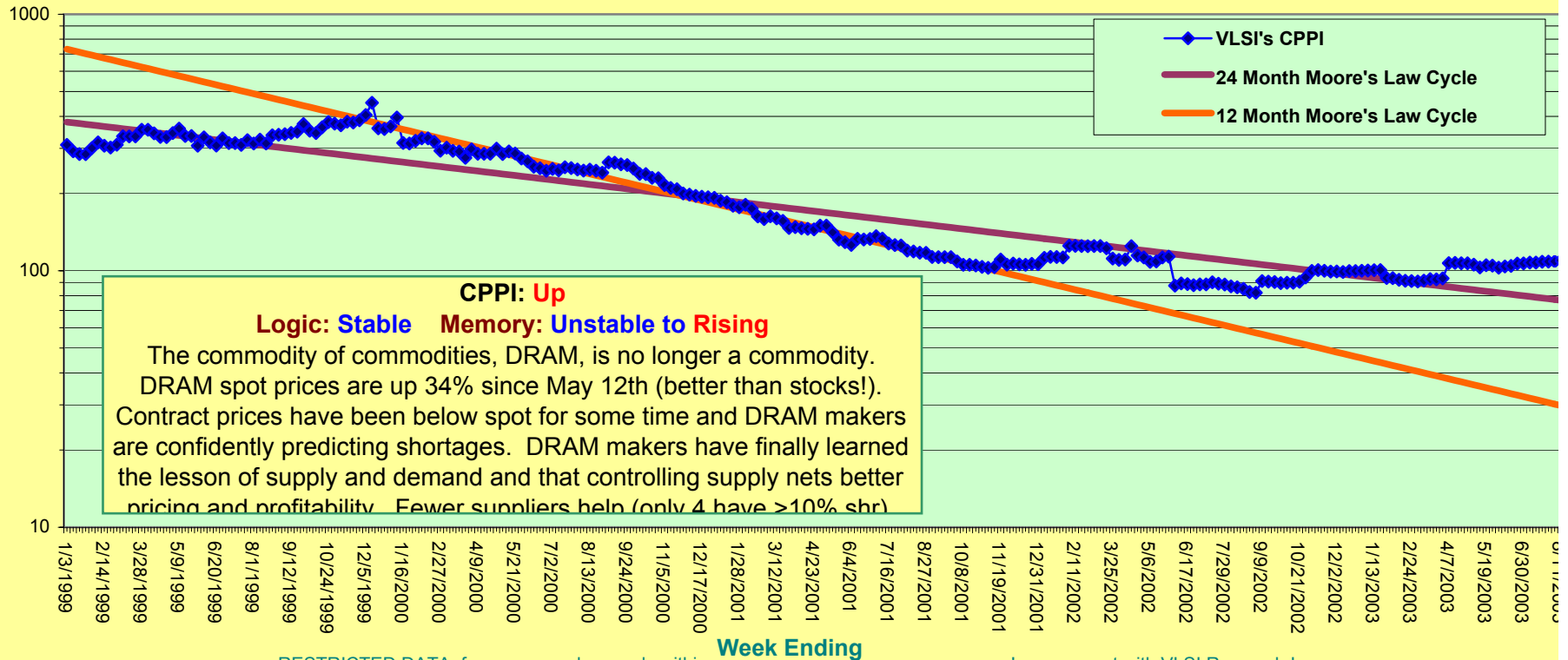
## VLSI's GLOBAL CHIP MAKING CLIMATE TREND INDEX

(Average of Regional Order Activity Patterns in Chip Equipment)



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## VLSI's Spot Market Chip Price Performance Index

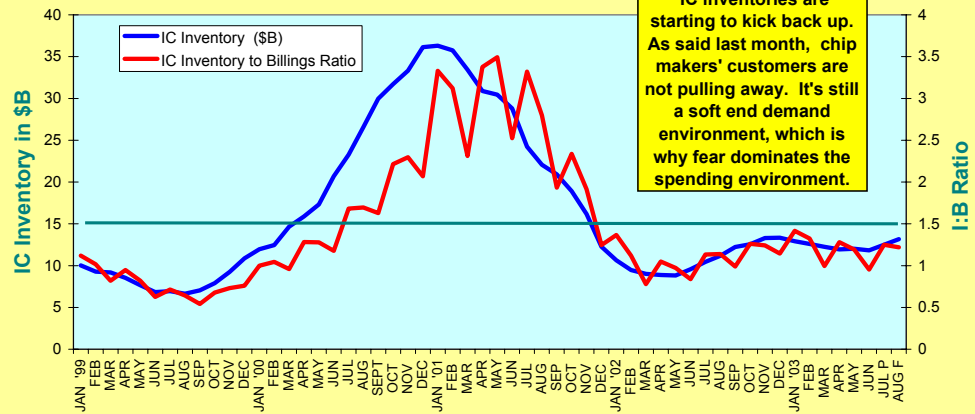


**CPPI: Up**  
**Logic: Stable Memory: Unstable to Rising**

The commodity of commodities, DRAM, is no longer a commodity. DRAM spot prices are up 34% since May 12th (better than stocks!). Contract prices have been below spot for some time and DRAM makers are confidently predicting shortages. DRAM makers have finally learned the lesson of supply and demand and that controlling supply nets better pricing and profitability. Fewer suppliers help (only 4 have >10% shr)

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## IC Inventories



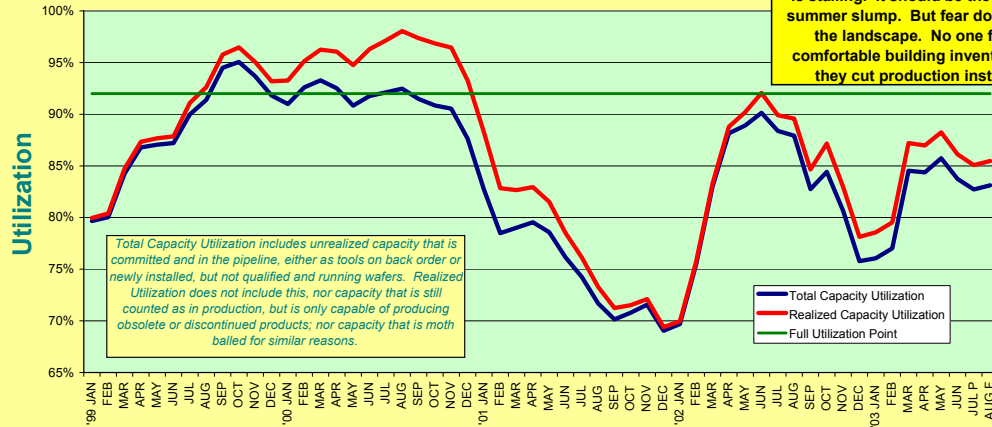
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## Realized Versus Total Capacity

Like IC inventories, capacity utilization is stalling. It should be the normal summer slump. But fear dominates the landscape. No one feels comfortable building inventory, so they cut production instead.



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Utilization by Node*							IC Fab Capacity* by Node in MSI					
Node**:	90	130	180	250	350	>500	90	130	180	250	350	>500
NOV	92%	95%	79%	75%	77%	85%	5.6	39.7	80.6	37.8	56.8	201.8
DEC	88%	88%	75%	69%	71%	81%	6.0	40.4	80.6	37.8	58.7	196.0
03 JAN	91%	90%	77%	64%	67%	82%	6.5	43.9	77.2	34.6	57.5	196.0
FEB	89%	90%	78%	65%	70%	82%	7.0	47.3	73.9	31.5	56.3	197.1
MAR	92%	97%	87%	76%	78%	89%	7.7	53.4	69.5	26.6	54.5	196.0
APR	93%	97%	87%	74%	76%	89%	8.3	57.3	67.6	25.8	53.2	196.3
MAY	93%	97%	88%	76%	78%	90%	8.9	61.0	65.8	25.1	51.9	200.4
JUN	93%	95%	87%	72%	75%	87%	9.7	65.1	63.7	24.2	50.5	204.9
JUL P	93%	95%	85%	70%	72%	86%	10.4	68.5	61.7	23.5	49.2	209.3
AUG F	94%	96%	83%	68%	71%	87%	11.3	71.5	59.6	22.8	48.0	213.6

\* Based on line loading. \*\* in nanometers

\* Realized

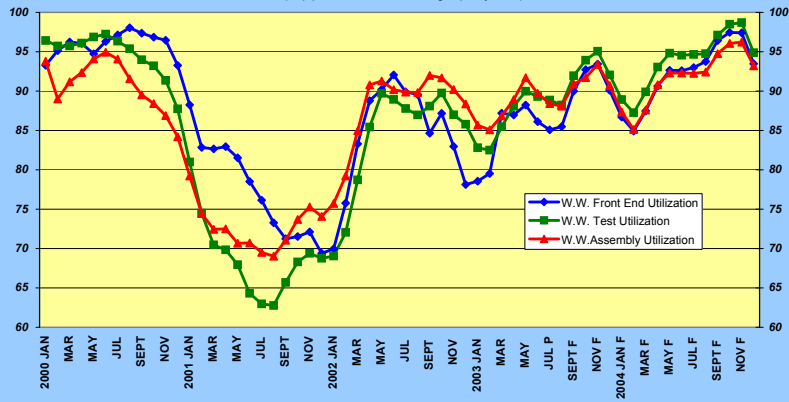
Utilization is sagging more in the middle. The reason why there is no panic is that this sag is still lightly loaded. This soft underbelly is a problem. Look back to 99/2000 - all nodes were tight for 6 months before the panic set in. -- Dan

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**CAPACITY UTILIZATION RATES**  
(chip production/manufacturing capacity, in %)



It's the summer slump. After a brief respite around SEMICON West, worries that this year will be a repeat of last summer have returned and dominate spending sentiment. At the same time, chip makers are more concerned about cash positions than capacity. Improving RONAs are a high priority. These outweigh fears of market share loss due to an inability to ship.

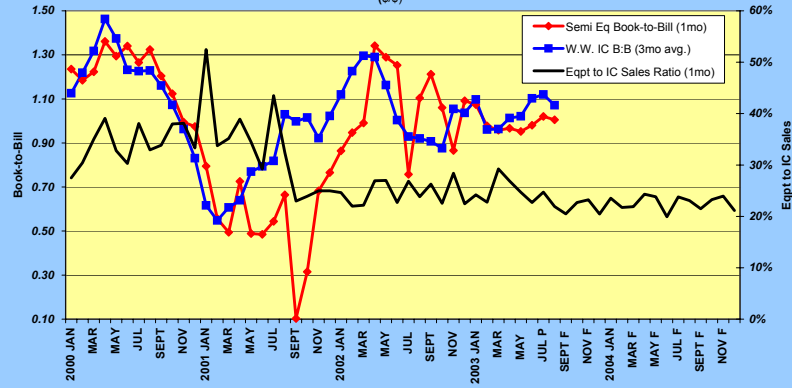
Most fear excess supply more and demand is lacking. We've added a 2004 forecast. It shows capacity constraints not

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### BOOK-TO-BILL & CONTENT RATIOS (\$/S)



- The B:B ratio for equipment turned up in June and chips hit 1.1. But the summer slump has slowed things down. August is proving to be a month that is testing the upturn.

- Chip makers feel no pressure, with equipment readily available. This why some companies are doing well and others poorly. With delivery no issue, they buy the best. There's no pressure for larger orders, because they don't believe they will need it.

- We don't see the Equip to IC Sales ratio trending up in the foreseeable future

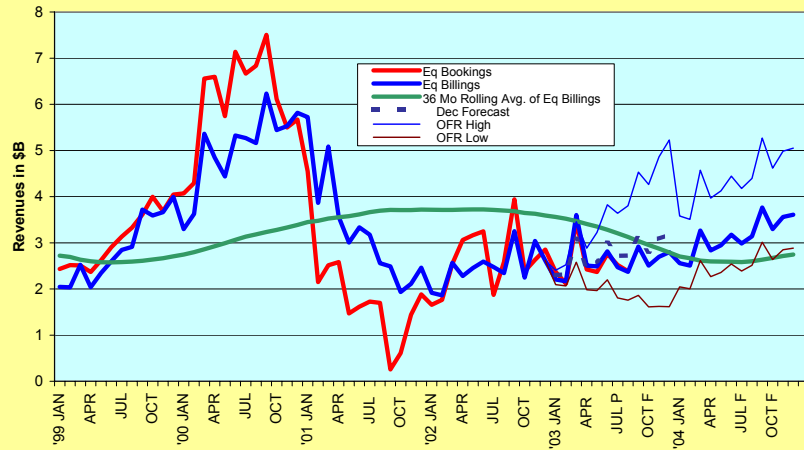
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### Worldwide Chip Making Equipment Markets

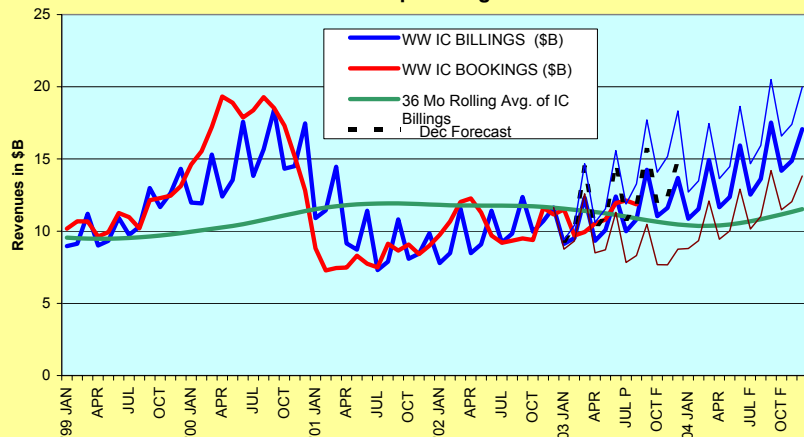


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Our 2003 forecast remains unchanged. But, weak demand has driven down our monthly forecasts for 2004. The net growth for the year is now 19% versus 24% last month. The demand picture is poor, bookings are tracking billings, and there is slow capacity expansion. All this pushes the probability for a hard upturn out to 2005.

This month extends the OFR line out through 2004. For now, the base is a flat high/low for each month instead of the Dec based trumpet shaped curves shown for 2003. A high-low range of +40% to

### Worldwide Chip Making Markets



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2Q03 closed with chips splitting the upper and lower OFR lines in each month. Preliminary results for July show bookings rolled over. It continues to be a weak recovery, exemplified by weak end-demand.

This month extends the OFR line out through 2004. A high-low range of +45% to 0% is shown.

One critical issue is where is no-man's land in the New Reality? It used to be +12 to 20%. Is it now +5 to 13%? There's no answer, so watch out.  
 -- Dan

Equipment					Chips				
	Current	Qtr/Qtr	B:B	Eq-to-IC		Current	Qtr/Qtr	B:B	Upturn
	Forecast	Growth	Ratio	Ratio		Forecast	Growth	Ratio	Prob.*
	(\$B)	(%)		(%)		(\$B)	(%)		(%)
3Q02	8.1	10.1%	1.04	26%	3Q02	31.4	8.4%	0.91	--
4Q02	7.9	-2.1%	1.00	24%	4Q02	32.3	2.9%	1.04	--
1Q03	8.0	0.9%	1.00	26%	1Q03	31.0	-4.2%	0.96	--
2Q03	7.8	-2.1%	0.97	25%	2Q03	31.8	2.7%	1.13	--
3Q03	7.8	-0.6%		22%	3Q03	35.1	10.2%		0%
4Q03	8.0	3.1%		22%	4Q03	36.3	3.6%		-5%
1Q04	8.3	4.1%		22%	1Q04	37.3	2.7%		-10%
2Q04	9.0	8.7%		23%	2Q04	40.0	7.1%		-15%

\* Ratio of Equipment Sales to IC Sales.

\* Judgmental probability of catching a wave in a quarter.

Probability is cumulative with + for an upturn - for a downturn.

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V Macro & Electronics V  
V Forecasts V

Preliminary results of VLSI quarterly data storms indicate the equipment market grew 1% in 1Q03 instead of the 3% decline expected. Q2 is looking like it declined instead of grew, but AMAT's not in yet. Still, 1H revenues were greater than thought. Note how the Eq-to-IC ratio jumped in Q1. Equipment got ahead of chips, like in the 1H02. So expect a flat second half. The 1H03 for Chips was worse than in '02. Strange, because U.S. electronics was better. Inventories are also declining & utilization is down, so chip makers are holding production for

U.S. MACROECONOMIC DATA									
	GDP			ELECTRONICS SHIPMENTS		MONEY SUPPLY PRIME (M1)		T-BILL RATE INFLATION	
	(\$B)*	Percent Growth	(\$B)	Q/Q Growth	(\$B)	Percent Growth†	(%)	3-Month (%)	(%)
4Q01	9249	2.7%	116.6	4.0%	1174	6.4%	5.2%	1.9%	-0.5%
1Q02	9363	5.0%	106.2	-8.9%	1182	2.5%	4.8%	1.7%	1.3%
2Q02	9392	1.3%	107.0	0.7%	1184	0.8%	4.8%	1.7%	1.2%
3Q02	9486	4.0%	105.5	-1.4%	1184	-0.1%	4.8%	1.6%	1.0%
4Q02	9518	1.4%	109.6	3.9%	1211	9.6%	4.5%	1.3%	1.8%
1Q03	9552	1.4%	101.1	-7.8%	1226	5.0%	4.3%	1.2%	2.4%
2Q03	9608	2.4%	108.5	7.3%	1258	10.9%	4.2%	1.0%	1.0%
3Q03	9691	3.5%	111.6	2.9%	1276	5.9%	4.0%	0.9%	1.4%
4Q03	9803	4.7%	117.9	5.6%	1283	2.0%	4.0%	0.9%	1.9%

\* Chained '96 Dollars

† Annual Rate of Growth

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The U.S. GDP grew at an annual rate of 2.4% in the 2Q03, according to Commerce Department's preliminary estimates. Clearly, the growth rate came in higher than expected, beating our last forecast as well as the consensus forecast, which anticipated a GDP growth of 1.5%. Personal consumption, which was up 3.3%, continues to be the driving force of economic growth—confirming our view that this will be a consumer-led upturn. With the huge growth in money supply, historic-low interest rates, and recent tax cuts/credits we expect a pretty hot second half in the U.S. economy. This is in line with our forecast for the 2H03 which remained unchanged (for specifics see table at bottom of this yellow box). -- Andrea

#### 2Q03 Statistics

	VLSI R Fcst	Actual	Consensus
GDP	2.0%	2.4%	1.5%
Personal Consumption	2.2%	3.3%	
M1	8.2%	10.9%	
Prime Rate	4.2%	4.2%	
T-Bill	1.1%	1.0%	
Inflation	1.0%	1.0%	

Equipment	Current Forecast (\$B)	Annual Growth (%)	OFR*	
			High (%)	Low (%)
2002	29.6	-24.6%	50%	-30%
2003	31.5	6.4%	50%	-20%
2004	37.6	19.3%	40%	-20%

\* Operational Flexibility Requirement (as measured in revenue growth)

Capacity Utilization	Realized (%)
2002	84.3%
2003	87.0%
2004	92.3%

Chips	Current Forecast (\$B)	Annual Growth (%)	OFR*	
			High (%)	Low (%)
2002	120.5	1.7%	40%	-20%
2003	134.1	11.3%	35%	-10%
2004	167.1	24.5%	45%	0%

\* Operational Flexibility Requirement (as measured in revenue growth)

Capacity Utilization	Total (%)
2002	82.9%
2003	84.3%
2004	86.2%

**Our forecasts for 2004 diverged, with equipment dropping from 24 to 19% & chips rising from 22 to 25%. 2003's forecast is unchanged for both. The recent weakness in equipment is the primary driver of this change. The beer gut in node utilization in another factor. -- Dan**

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