XLNX Analyst Day
28nm Euphoria Yields +8+12% Revenue CAGR

Xilinx *(XLNX, $37.19 +0.80, Rated 'Not Compelling/Hold on my latest Chip Investment Ideas)*
Analyst Day: XLNX held an analyst day in NYC yesterday afternoon after raising its quarterly dividend by 3-cents to $0.25 in the morning. While management offered a 3-year revenue CAGR of +8+12% with lots of justification and confidence emanating from its 28nm offerings, the crowd of analysts seemed to struggle with a growth rate approximating twice that expected for the overall semiconductor industry. I find a lot to love about this company including management, strategy, profitability and potential for growth, but its fundamental share price valuation isn't one of them and I remain on the sidelines (although it is trading below such metrics for ALTR at this time.)

Overview: XLNX views its business through a 28nm prism: the technology node is short-hand notation for a family of FPGAs, SoCs, 3D-IC packaging, and design software that was early to market, is ramping faster, and displacing more ASICs and ASSPs than any other generation of offerings in the company's history. Yes, the line-width technology itself came to market in a timely fashion and offers indigenous performance advantages, but ignoring the comprehensive nature of the complete package dilutes appreciation of the revenue growth potential it offers FY13-16 at a +8+12% CAGR. FY14 model: gross margin 66%, R&D $460-480, SG&A $375-385, amortization $10M, interest/other -$30M, tax rate 14%, cap ex $30-40M. New CEO five years ago has made a favorable mark on the company, in my opinion. ALTR/INTC relationship is a sideshow that XLNX became aware of along with the rest of us, and will deal with when it gets to that part of its roadmap that is two generations away (but was nicer about it).

Background: Fiscal-year ends March and last quarter's miss included revenue of $510M that declined by -6% but management guided for growth of +2+6% this quarter. Gross margin was 66.5%. By market: Comm/Data Center at 47% of sales declined by -11% sequentially; Industrial/Aerospace/Defense at 36% +7%; Broadcast/CE/Auto at 15% -7%. By product: New 25% +17%; Mainstream 41% -18%; Base 30% -3%; Support 4% +1%. To compare, ALTR reported a miss of $439M down -11% and guided for a sales decline of -8-4%. Gross margin was 69.7%.

Products: The 28nm, Series 7 generation offering sampled in the Fall of 2011 and now fuels growth and confidence at XLNX, including a cumulative $100M in sales its first FY ending this quarter and $250M expected FY14. Five family offerings include: the Virtex, Kintex and Aritix FPGAs; Zynq SoC; and 3D-IC stacked package module.

Virtex-7 FPGA at the high-end with 200+ customers mostly in communications/data center applications.
Kintex-7 mid-range FPGA with 550+ customers designed for wireless apps but serving all segments.
Artix-7 low-end FPGA with 70+ customers weighted toward industrial/aerospace/defense applications.

Zynq is a programmable SoC that includes an embedded ARM processor, FPGA and I/Os supporting all major operating systems with 350+ customers, 100+ partners and 20 different development boards. 20K units and 4K boards have already shipped and it is ultimately expected to account for 20% of 28nm-generation revenue.

3D-IC stacking include the 7V2000T allowing for its industry-leading 28Gbps SerDes in different process technology and other devices to piggy-back together for a highly compact, high-performance module-type offering.

The new Vivado software design suite was built from scratch, offers faster time-to-market and higher-performance, and has been available for a year but is already being used for half of 28nm and all 3D-IC designs.

Roadmap: 28nm HPL—20nm SoC—14/16nm FinFET—10nm. Next-generation, industry-first 20nm Series 8 devices will tape-out and sample 2QCY13 and are already supported by Vivado. Development work began in 2010.

Markets: Four megatrends driving XLNXs programmable imperative: Wireless, 100G wired networks, data centers, and video/vision. See the Megatrend Growth Drivers chart on Page 2 and note the absence of some Industrial, Aero, Defense, Broadcast and Consumer markets. Video/vision includes a grab bag of driver assist, HD surveillance, video conferencing, studio cameras, office MFPs, machine vision in factory automation, broadcast monitor, cinema projection, digital signage, medical displays, and consumer display applications. 2016 SAM of $16B = $2B embedded + $8B ASIC/ASSP displacement + $6B PLDs. Displacing ASIC and ASSP based designs is a key growth driver for XLNX. Its 40nm-generation designs claimed 10% displacement while 28nm is running at 25% including 40% in wired communications and at least one customer at 80%. See Displacement table on Page 3. Market data counts less than 50 ASIC starts at Top 10 Communication OEMs including less than 20 at 28nm due to the increasing costs of advancing technology nodes. XLNX is displacing more ASSPs than anticipated and argued for a programmable FPGA advantage over standard ASSPs, although I do not share its certitude and prevalence.

MEGATREND GROWTH DRIVERS

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		Wireless (HetNet/Backhaul)	100G Wired Networks	Data Center (Networking/Storage)	Video/Vision
Products	*FPGA*	Wireless DFE FEC MIMO L1/L2 Baseband	Traffic Management Packet Processing Framers Mappers SAR	SSD Controllers Application Accelerators 80G NIC	Ultra HD Display Video Processor Pro Camcorder
	SoC/ZYNQ	Remote Radio Backhaul Modem Metro Small Cell	Carrier Ethernet Wired Backhaul	Security Appliance WAN Acceleration	Driver Assist Machine Vision Video Conferencing
	3D IC		100G OTN 400G OTN MuxSAR	Top Switch I/O Virtualization	

						Switches and Routers	
		(LTE)				Enterprise	Service Providers
TAM	***2012 TAM***	$6.5B	$8.2B	$12.2B		$23.5B	$14.3B
	2011-16 CAGR	+27.2%	+15.9%	+5.5%		+4.1%	+9.4%
	2016 TAM	$17.0B	$14.8B	$15.1B		$27.6B	$20.5B
	XLNX Oppty	HetNet	Packet	Big Data/Fabric		SDN/Openflow	Smart Pipes

		(Radio)	*(OTN)*	*(Appliance Logic)*	*(Driver Assist)*
SAM	***2012 XLNX BOM Share***	30%	12%	5%	18%
	2016 XLNX BOM Share	50%	32%	8%	26%
	2012-16 CAGR	+9%	+11%	+15%	+16%
	2016 SAM	$2.4B	$4.4B	$2.2B	$2.1B
	XLNX Opportunity	DPD	Framer	Traffic Management	Object Detection
		PC-CFR	Mapper	10/40/100G Switching	Object Classification
		DUC/DDC Compilier	FEC	Packet Processing	Motion Estimation
		CPRI Switching	Traffic Management	AES, IPSEC, MAC SEC	Lane Detection
		ARM Dual A9 Cortex	Packet Processing	LZRW3 Compression	Real-Time 3D Stitching

			Wired Communications and Data Center	*Automotive*	*Other*
Revenue	***Application***	Backhaul Baseband Radio	Other Backhaul Data Center Enterprise Metro	Other Driver Assist Infotainment	Scientific/Other Energy Industrial Networking Medical Imaging
	FY13 Revenue/Quarter	$115M	$130-140M	$25M	$70M
	FY16 Revenue/Quarter	$150-160M	$190-200M	$40-45M	$95-100M
	CAGR	+10+12%	+12+14%	+20%	+12%
	XLNX Focus	Kintex LTE Radio	Virtex 100G+ Deployment	ZYNQ Vision	Kintex, Artix, ZYNQ Industrial Networking
		APAC Expansion	ZYNQ Backhaul	Expand Customer Base	ZYNQ Machine Vision and Motor Control
		ZYNQ Small Cells	FPGA/SoC/3D IC Data Center Performance	Govm't Safety Mandates	ZYNQ Portable Medical Applications
		ASIC/ASSP Displacement	ASIC/ASSP Displacement	ASIC/ASSP Displacement	ZYNQ Energy Management

28nm Displacements

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ASIC Displacements

Application	Virtex	Kintex	Zynq
Network Security ASIC			X
LTE Wideband Processing		X	
40G-80G NIC	X		
Remote Radio Head		X	X
Enterprise Switching Equipment		X	
Access Equipment			X
Svc Provider Router/Switch	X		
Digital Front End, Micro/Pico		X	X
Scalable Shared Memory System		X	
Medical Imaging, 64/192 Channel F/E		X	
Medical Imaging			X
Satellite Communication	X		
4K-2K OLED Display		X	
MFP Image Processing		X	
Driver Assist			X
Auto Driver Assistance			X

ASSP Displacements

Application	Virtex	Kintex	Artix	Zynq
3x40G to 100G Ethernet ASSP	X			
10x10G Ethernet to Interlaken	X			
100G Ethernet to Interlaken ASSP	X			
PCI Bridge ASSP				X
40G Optical MuxSAR + Switch				
Remote Radio Head		X		X
Macrocell Baseband		X		X
Data Center SSD Controller				X
TDD-LTE Remote Radio Head		X	X	
Microwave-MIMO Transport		X		
LTE Pico/Femto Cell		X		
16-Port GPON Line Card		X		
Metro Switching Equipment	X	X		
CFP-2 Gearbox	X			
GPS Receiver				X
80G Ethernet QoS Processor	X			

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