

TILE-Gx 3000 Series Overview

KEY APPLICATIONS

Internet

- Web serving
- PHP applications
- Java applications

Scalable Database

- In-memory database (Memcached)
- NoSQL database

Data Mining

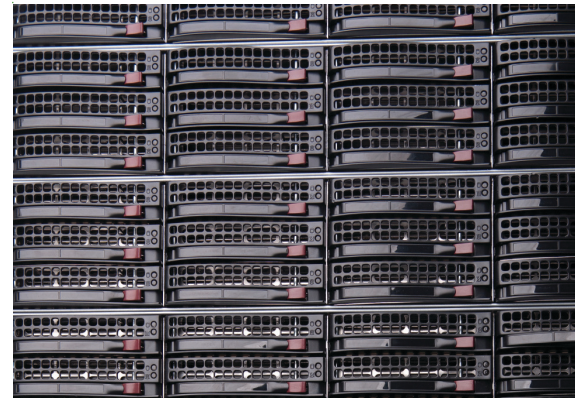
- Hadoop
- Map reduce applications

Optimized for Cloud Datacenter Applications

The TILE-Gx™ 3000 series offers the high performance and low power required for server applications in cloud datacenters. The TILE-Gx processor cores are true 64-bit cores with 40 bits of physical address space making them ideal for cloud computing applications. The TILE-Gx series features 36 to 100 cores, each running at up to 1.5 GHz and providing coherent I/O directly into the caches to deliver low-latency networking. Integrating PCIe controllers, memory controllers, and 1 Gb/10 Gb Ethernet ports. The TILE-Gx is a complete server-on-a-chip saving space, cost and power over multichip solutions.

Most Scalable Processor Family

The TILE-Gx 3000 family is the most scalable server processor in the industry with 36, 64 and 100 cores on a single device. All three processors are software compatible allowing for seamless deployment across multiple server form factors and performance levels.



Best Performance Per Watt

The TILE-Gx family combines Tiler's patented iMesh™ technology with the Tile Architecture™ to deliver the most efficient and high powered processor available. Low latency and high bandwidth interconnects ensure the 64-bit cores are able to maximize performance and minimize system bottle necks. This efficiency allows each processor to run at lower clock speeds, saving power, yet still deliver the performance demanded by high speed networking applications.

	Features	Enables
Massively Scalable Performance	36 to 100 general purpose processor cores (tiles) 64-bit VLIW cores with 64-bit instruction bundle 40 bits of physical address space	Deploy same architecture across multiple applications with different processing needs High performance web applications Large addressable space
Power Efficiency	1.0 to 1.5 GHz operating frequency 20 to 48 W for typical applications Idle tiles can be put into low-power sleep mode	Highest performance per watt Simple thermal management Small system form factor
Integrated Solution	Four 64-bit DDR3 memory controllers (optional ECC) Two 10 GbE XAUI interfaces Three Gen2 PCIe interfaces, each selectable as endpoint or root complex Wire-speed NIC function packet processing engine	Reduces BOM cost – standard interfaces on-chip Dramatically reduced board real estate Up to 96 Gbps of PCIe bandwidth Over 20 Gbps of packet I/O bandwidth
Multicore Development Environment Options	Standard Linux Standard GNU tools Full offering of standard libraries Over 2,000 packages	Tiler-based servers are just like any other Linux box Run off-the-shelf C/C++ programs Familiar and standard programming environment

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Integrated Solution

The Tile architecture integrates a complete set of memory and I/O controllers, eliminating the need for an external north bridge or south bridge. This integration dramatically reduces the amount of board space required allowing for smaller form factors. It eliminates discrete components which reduces BOM costs and design complexity to lower system costs and speed time to market.

Standard Software Tools

- Tiler's Multicore Development Environment™ (MDE) is a complete Linux-based distribution with associated tools chain 1000s of standard RPM packages and support for

the majority of popular languages. The MDE enables developers to work with Tiler-based servers just like any other linux servers they work on

- The MDE leverages Open Source software and the developer's existing software code base to achieve impressive results in an extremely short period of time. As developers become more familiar with large-scale multicore, they can take advantage of enhanced tools and libraries offered in the MDE.

Tiler's MDE includes:

- Centos-compatible Linux 2.6.36 with support for 2,000+ standard RPM packages

- Standard tool chain including GCC, g++ , gdb, gprof, oprofile, perf event, mudflap, eclipse
- Full support of standard languages including ANSI C/C++, Java, PHP, Perl, Python
- Advanced programming frameworks including Erlang, TBB, open MP
- Standard management protocols including IPMI 2.0, SNMP, Syslog, Telnet, SSH, TFTP, FTP, SCP

	TILE-Gx3036	TILE-Gx3064	TILE-Gx3100
Core Count			
General Purpose Cores	36	64	100
I/O Features			
PCIe Gen2 ports	One x8, One x4 or Three x4	Two x8, One x4	Three x8
XAUI/Double XAUI Ports (max)	2/2	2/2	2/2
SGMII Ports (10/100/1000)	4	4	6
mPipe Throughput	30 Mpps	30 Mpps	30 Mpps
USB Ports	2	3	3
Memory Features			
Total cache	12 MBytes	20 MBytes	32 MBytes
Memory Controllers			
Max DDR3 Speed	1,886	2,133	2,133