AMD

A NEW DAY FOR THE DATACENTER

FORREST NORROD
SVP AND GENERAL MANAGER,
ENTERPRISE, EMBEDDED AND SEMI CUSTOM BUSINESS GROUP

CAUTIONARY STATEMENT

This presentation contains forward-looking statements concerning Advanced Micro Devices, Inc. (AMD) including, but not limited to: AMD's strategy, focus, vision, forecast, future plans, growth opportunities, priorities and expectations; the timing, features, functionality, availability, expectations and benefits of AMD future products; AMD's 2017 commitments including AMD's ability to launch new products, expand margin, grow revenue and drive profitability; AMD's planned future investments and focus, including markets, technology and key decisions; TAM, growth opportunities and the timing of those growth opportunities in PCs, immersive platform, and datacenter markets as well as AMD's ability to grow, increase revenue and gain market share in those markets; AMD's commitment and long term investment in the datacenter market; AMD's ability to disrupt and lead in the datacenter market; AMD's product, technology and financial roadmaps; share and revenue growth opportunities and the timing of those growth opportunities in AMD's Enterprise, Embedded and Semi-custom and Computing and Graphics businesses; AMD's ability to achieve SAM expansion and margin expansion in the Computing and Graphics business; Computing and Graphics' client compute opportunities; AMD's 2020 growth opportunity; AMD's ability to expand non-GAAP gross margin in 2018 and 2020; AMD's 2017 financial priorities and outlook; AMD's 2017 and long-term financial model including revenue, non-GAAP gross margin, non-GAAP operating expense, non-GAAP net income, capital expenditures and non-GAAP earnings per share; AMD's ability to deliver long-term shareholder value; AMD's ability to achieve its long term financial priorities, including revenue growth, gross margin expansion, consistent profitability and a strong balance sheet; AMD's ability to achieve double digit percentage revenue growth; AMD's ability to achieve gross margin expansion through higher ASPs and richer product mix; long-term gross margin drivers; ability of AMD's new products to drive revenue and gross margin expansion; AMD's long-term capital structure and liquidity; and AMD's 2018 and long-term financial model regarding growth and profitability, which are made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are commonly identified by words such as "would," "may," "expects," "believes," "plans," "intends," "projects" and other terms with similar meaning. Investors are cautioned that the forward-looking statements in this presentation are based on current beliefs, assumptions and expectations, speak only as of the date of this presentation and involve risks and uncertainties that could cause actual results to differ materially from current expectations. Such statements are subject to certain known and unknown risks and uncertainties, many of which are difficult to predict and generally beyond AMD's control, that could cause actual results and other future events to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. Investors are urged to review in detail the risks and uncertainties in AMD's Securities and Exchange Commission filings, including but not limited to AMD's Quarterly Report on Form 10-Q for the quarter ended April 1, 2017.

NON-GAAP FINANCIAL MEASURES

In this presentation, AMD has provided non-GAAP financial measures including non-GAAP gross margin, non-GAAP operating expenses, non-GAAP operating loss, non-GAAP interest expense, non-GAAP net loss, non-GAAP loss per share and Adjusted EBITDA. The non-GAAP financial measures disclosed in this presentation should be viewed in addition to, and not as a substitute for or superior to, AMD's reported results prepared in accordance with GAAP and should be read only in conjunction with AMD's Consolidated Financial Statements prepared in accordance with GAAP. These non-GAAP financial measures referenced are reconciled to their most directly comparable GAAP financial measures in the Appendices at the end of this presentation.

EESC

HIGH-PERFORMANCE COMPUTING AND GRAPHICS SOLUTIONS

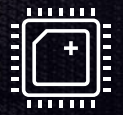
Enterprise/Server

Embedded

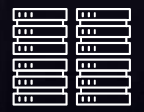
Semi-Custom

AMD

EESC FUNDAMENTALS



Strong Foundation for Future Growth



Differentiated Datacenter Products

Expanding Semi-Custom and Embedded Opportunities

SEMI-CUSTOM EXPERTISE

ESTABLISHED GAME CONSOLE LEADERSHIP

Microsoft PROJECT SCORPIO

"It's not a process of calling up AMD and saying I'll take this part, this part and this part. A lot of really specific custom work went into this."

– Kevin Gammill, Microsoft

SONY PS4 Pro

"How it works is that we sit down with AMD, who are terribly collaborative. It's a real pleasure to work with them."

– Mark Cerny, Sony

HIGH-PERFORMANCE DIFFERENTIATED SOLUTIONS

High-Performance, Scalable Technologies	Modular SoC and Platform Design Capabilities	Deep Customer Integration and Co-Development
ZEN RADEON	FABRIC	Microsoft SONY

SEMI-CUSTOM MODEL

SEMI-CUSTOM & EMBEDDED FOCUS

Gaming

Visual Embedded

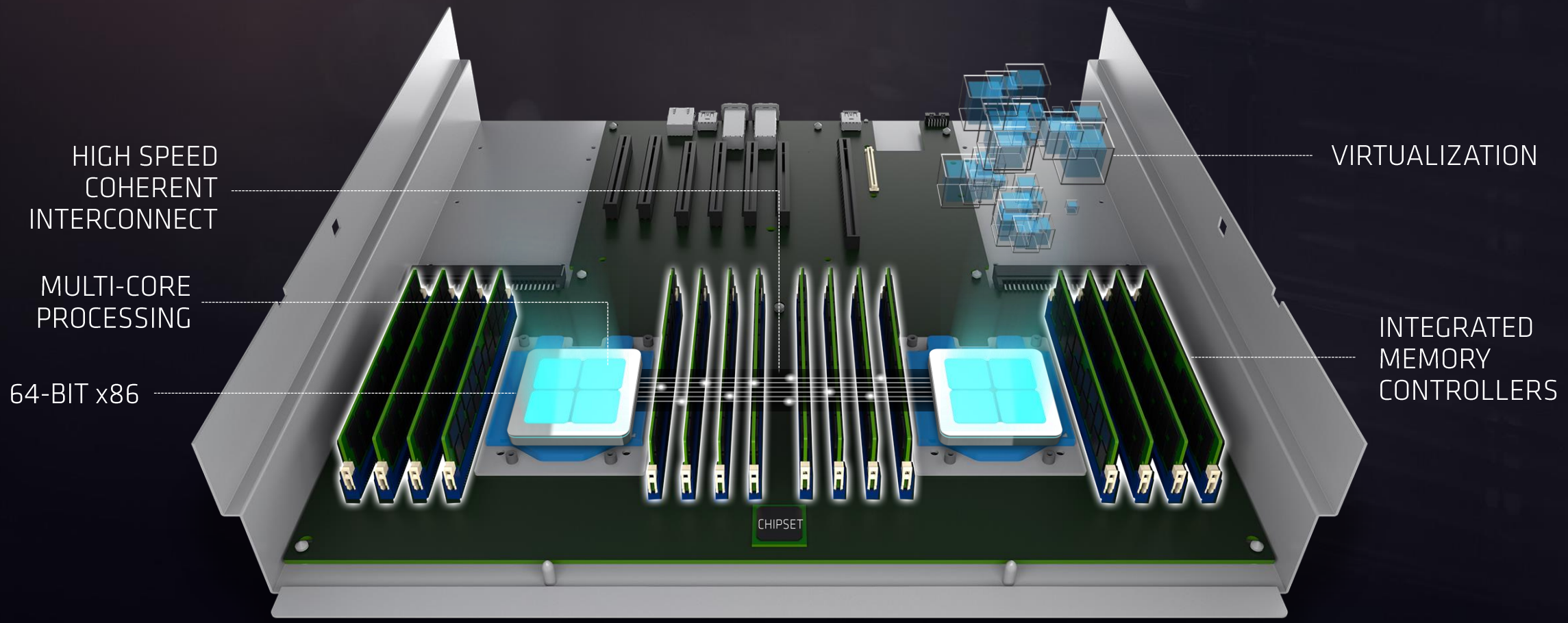
Imaging

Infrastructure

Datacenter


#1 PRIORITY
DATACENTER
LEADERSHIP

AMD FIRST


HIGH SPEED COHERENT INTERCONNECT
MULTI-CORE PROCESSING
64-BIT x86
VIRTUALIZATION
INTEGRATED MEMORY CONTROLLERS
CHIPSET

SERVER
MARKET IS STAGNANT

Performance Limited by Unbalanced Designs

"Incrementalism"

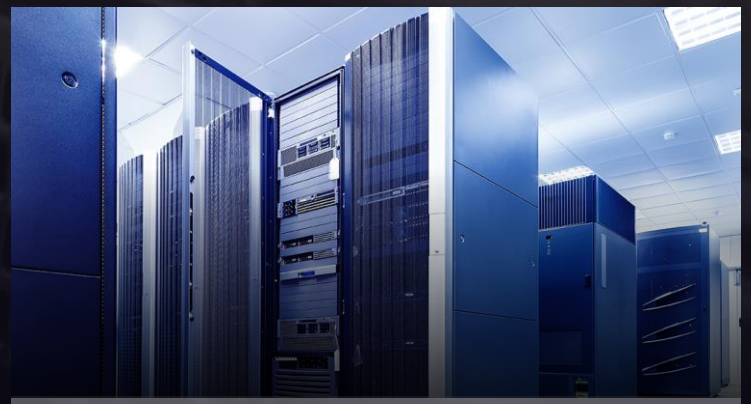
Systems Not Evolving with Cloud

AMD

EPYC

PERFORMANCE AND FEATURES FOR

$16B TAM[1] IN 2020



Server

Storage

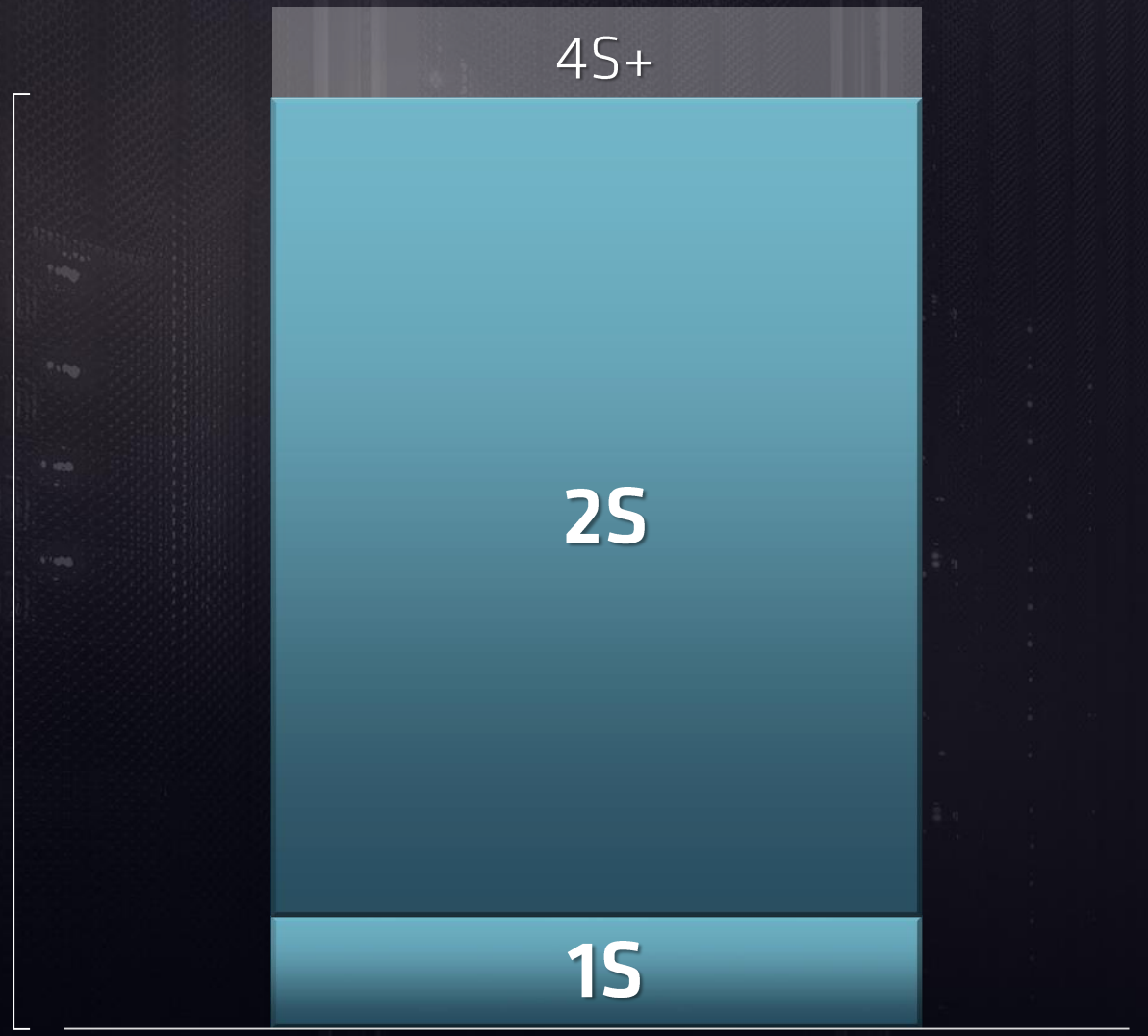
Networking

(1) AMD Internal Estimates for Calendar 2020

AMD

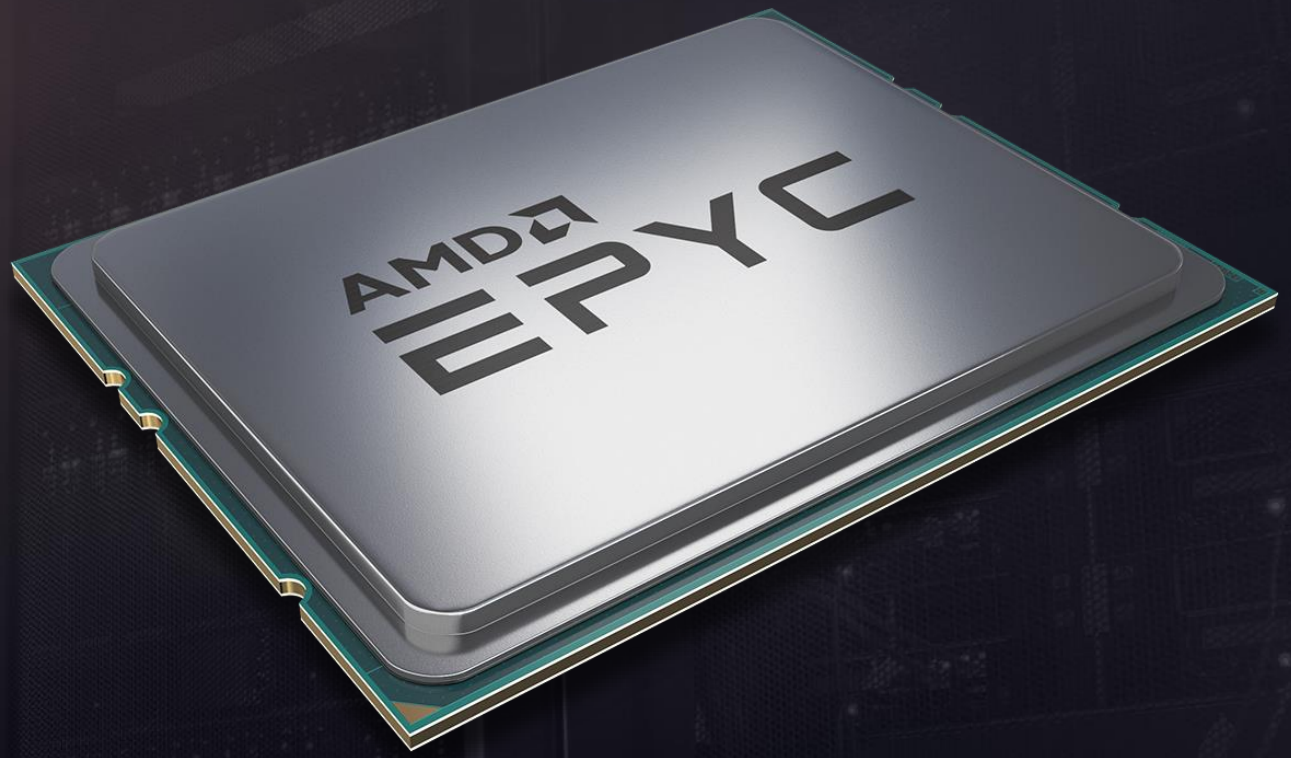
x86 SERVER **MARKET**

91%
of the Market
is Single or
Dual Socket



Source: IDC historical data of split of x86 server volumes by socket capability

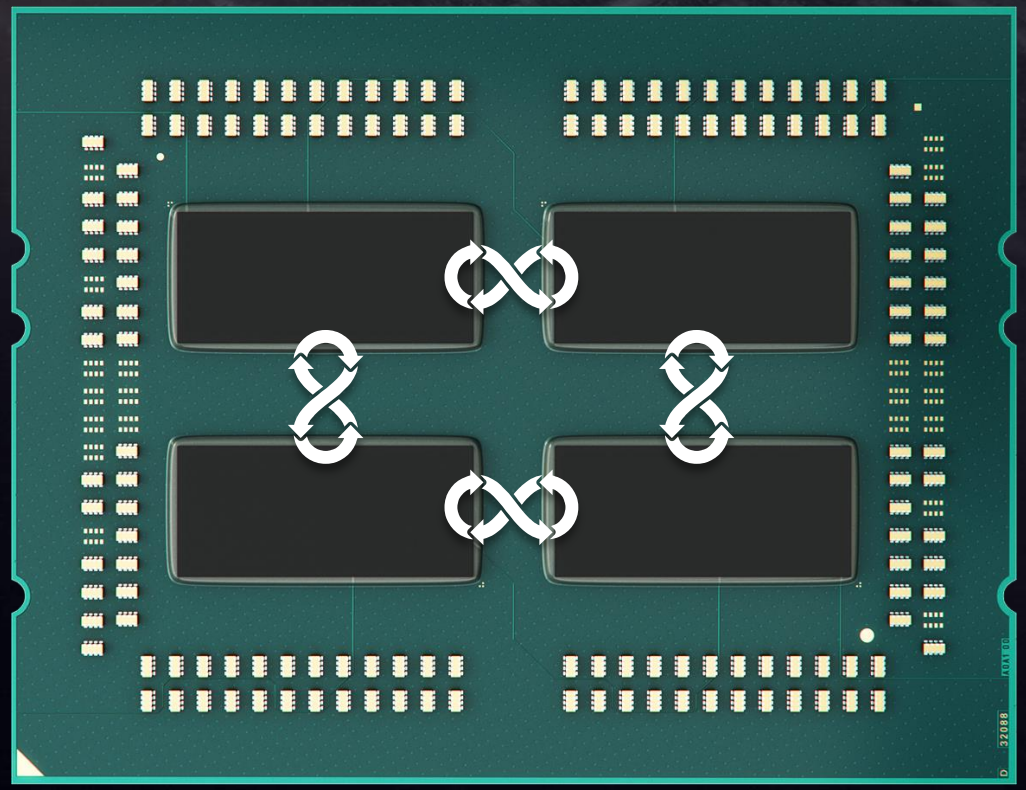
AMD



32 “Zen” Cores	8 Memory Channels	128 Lanes of High-Bandwidth I/O	Dedicated Security Engine

BREAKING CONSTRAINTS OF **MOORE'S LAW**

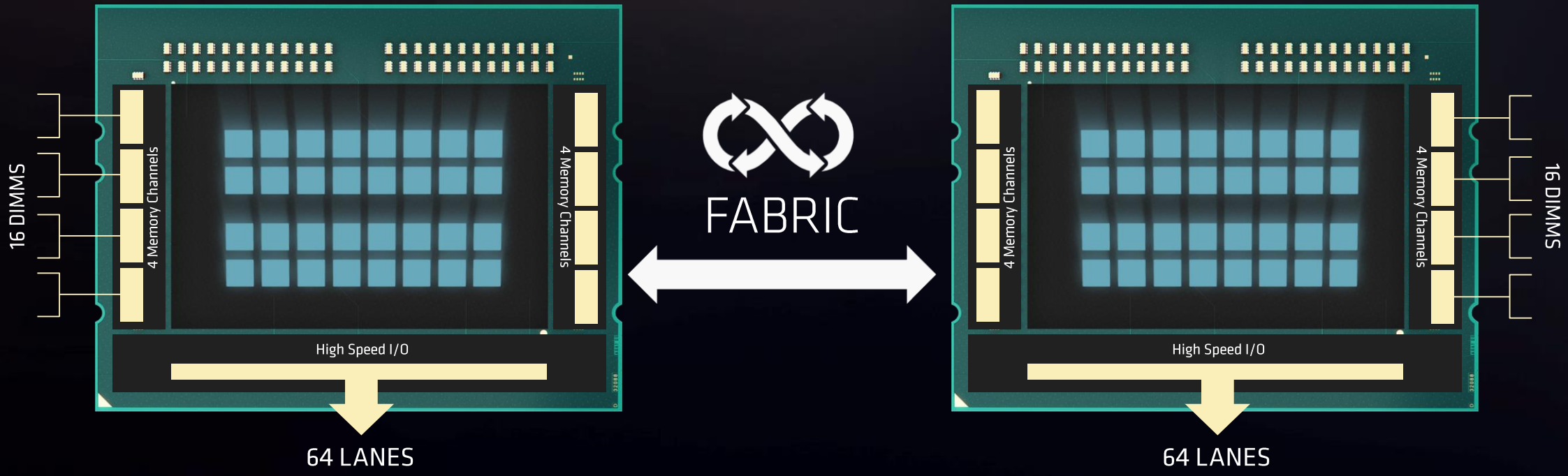
- Revolutionary Infinity Fabric
- High-performance, scalable links
- Enables architectural innovations that increase real-world performance
- Improves product yields
- Reduces product costs



AMD

EPYC TWO SOCKET PLATFORM

64 Cores | **4TB** Memory | **128** PCI Express® Lanes



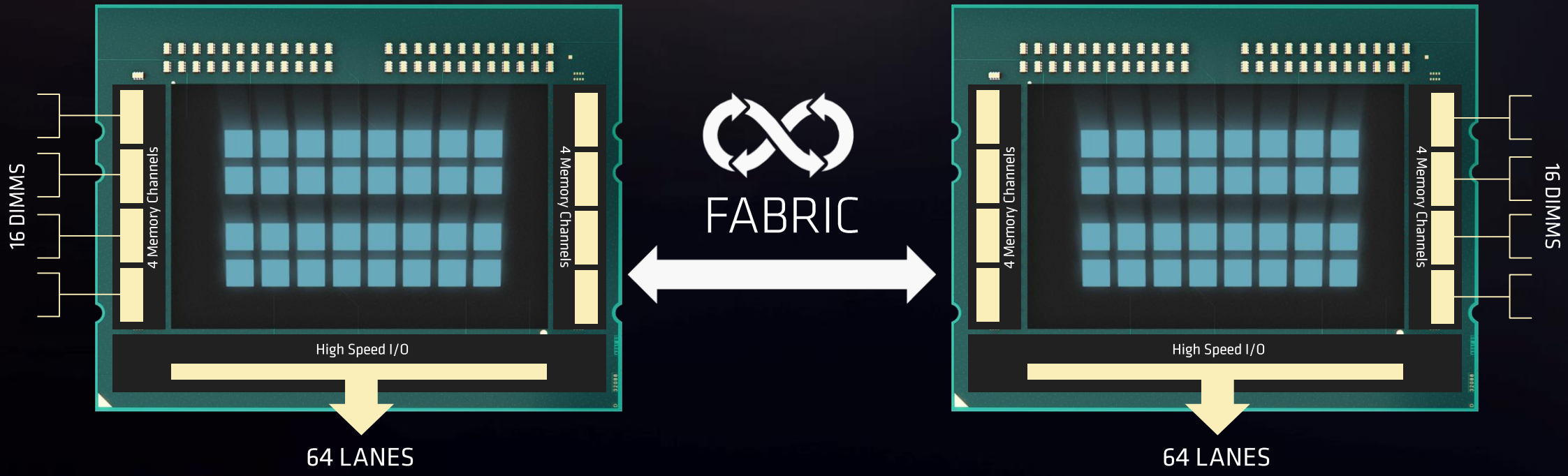
AMD

EPYC TWO SOCKET PLATFORM

45% More Cores than Competitor

122% More Memory Bandwidth than Competitor

60% More I/O than Competitor



See Endnotes

AMD

EPYC LEADERSHIP

High Performance Compute	Cloud, Hyperscale, and Virtualization	Machine Learning	Big Data and Analytics	Software-Defined Storage
				

LEADERSHIP

High Performance Compute

Cloud, Hyperscale, and Virtualization

Machine Learning

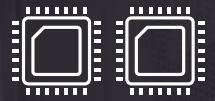
Big Data and Analytics

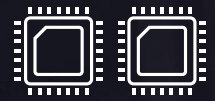
Software-Defined Storage

HIGH-PERFORMANCE VIRTUALIZATION

- Highest-performance dual socket offerings
  - AMD Epyc vs. Intel Xeon® E5 2699A V4
  - VMware hosting Linux® guest VMs
- 8 VMs running compilation of Linux® kernel
  - Compute intensive
  - Performance CPU bound
- Demonstrate compute capability for cloud and enterprise datacenters

2 SOCKET SYSTEM CONFIGURATIONS





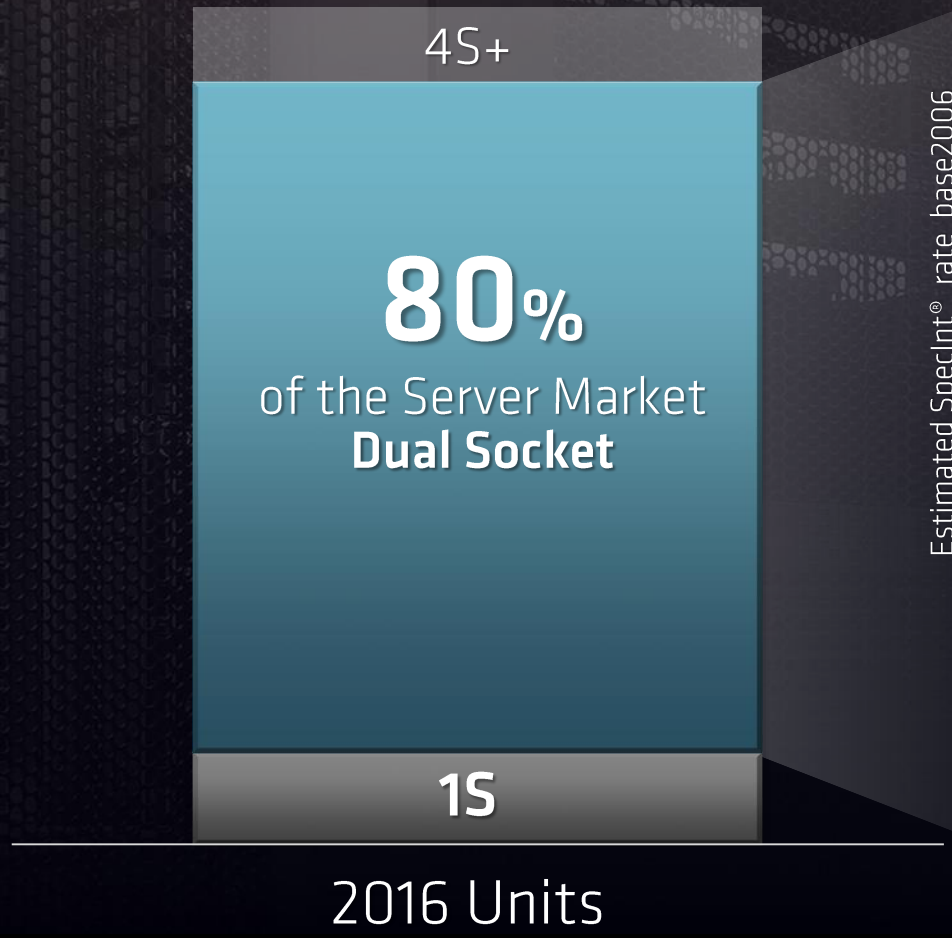
Component	AMD EPYC	INTEL
CPU model		E5-2699A V4
Sockets	2	2
Total cores	64	44
Total memory channels	16	8
Total populated memory (16 GB DIMMS)	256	128
Memory frequency	2400	2400
Total PCIe® gen3 lanes to CPUs	8x16=128	2x40=80

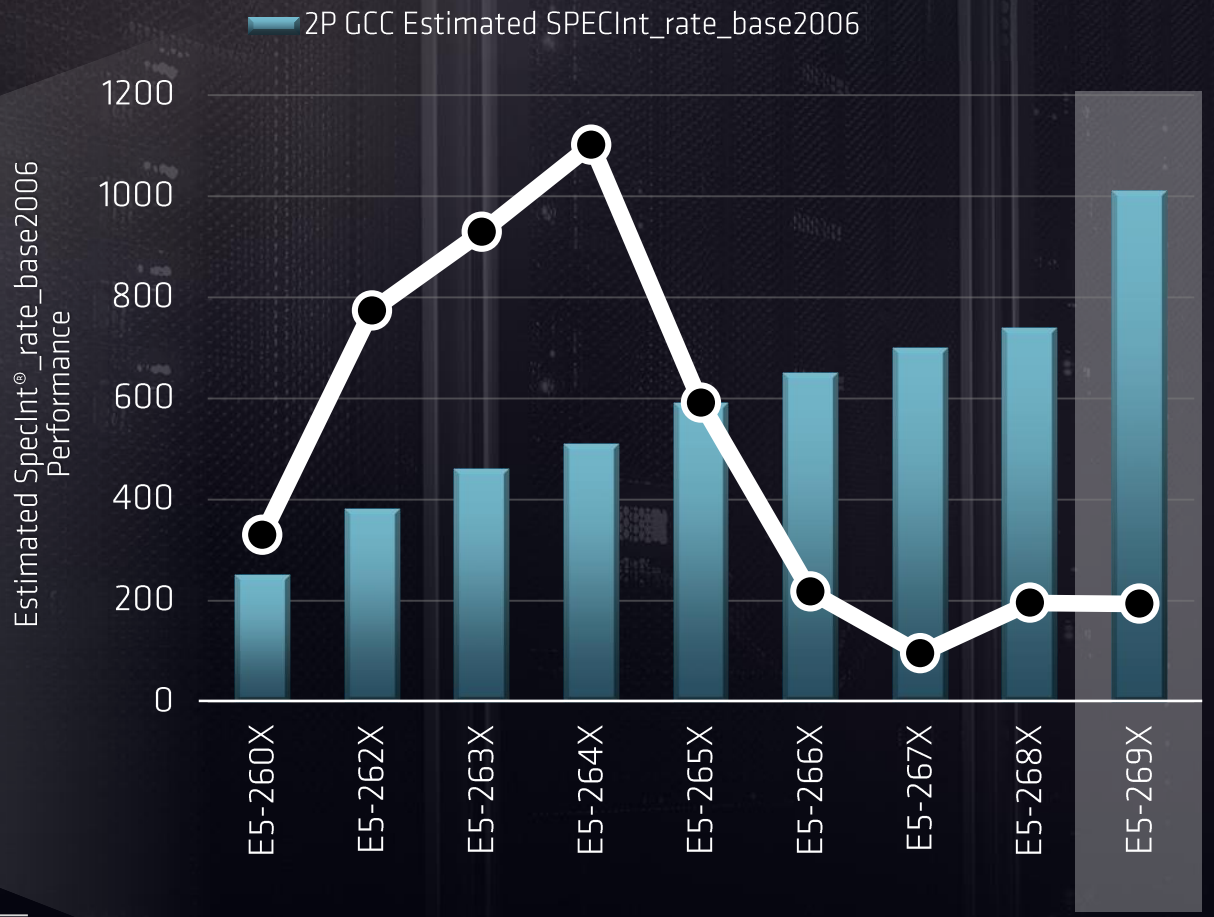
Intel server is a typical standard, commercially available server from a major OEM

AMD

x86 SERVER **MARKET**

>50% of the 2P Shipments are 2650 or Below





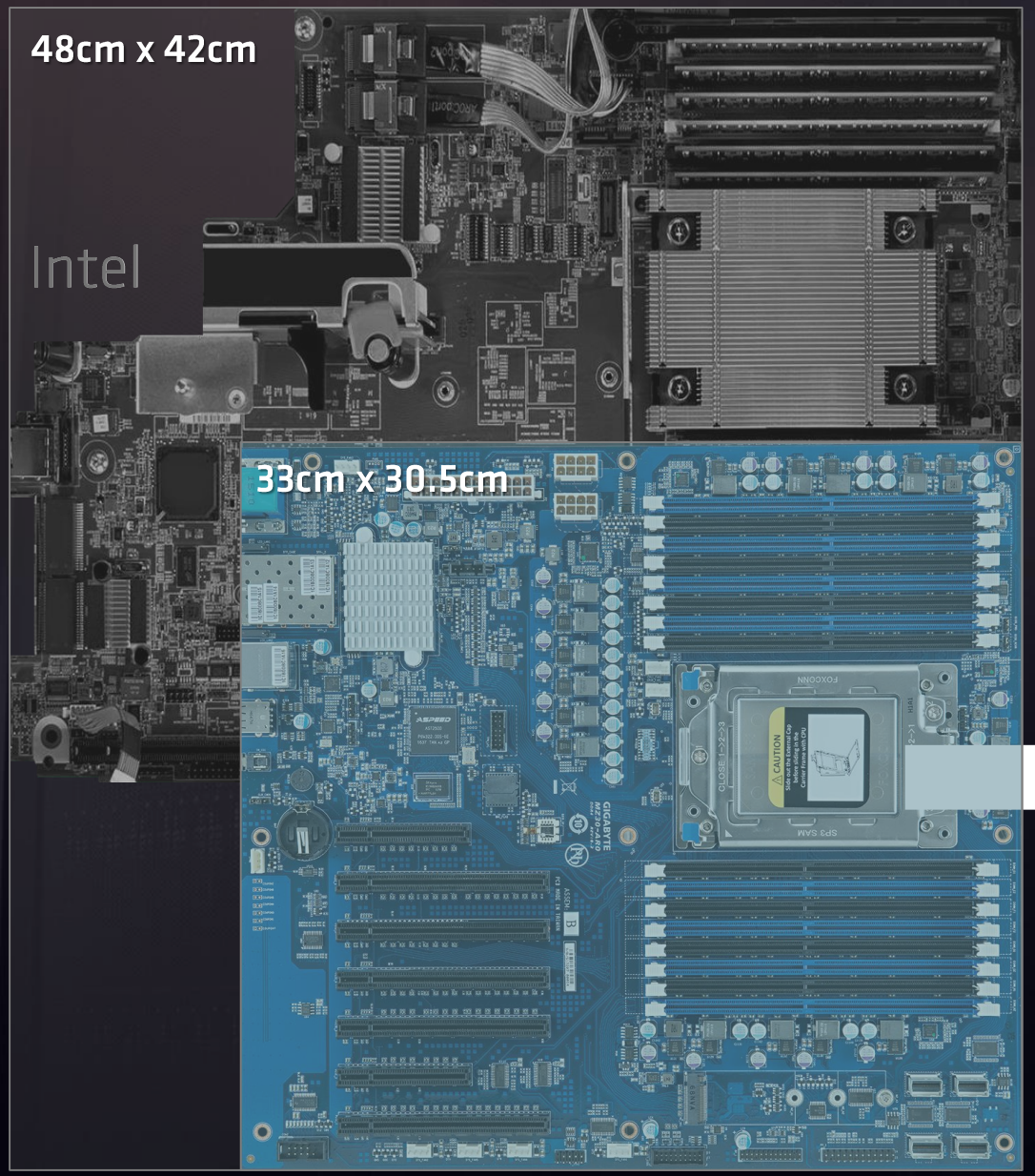
See Endnotes

AMD

1S VS. 2S SYSTEM CONFIGURATIONS

Component	AMD EPYC	INTEL
CPU model	EPYC	E5-2650 V4
Sockets	1	2
Total cores	32	24
Total memory channels	8	8
Total populated memory (16 GB DIMMS)	128	128
Memory frequency	2400	2400
Total PCIe® gen3 lanes to CPUs	8x16=128	2x40=80

Intel server is a typical standard, commercially available server from a major OEM



EPYC

MORE CORES

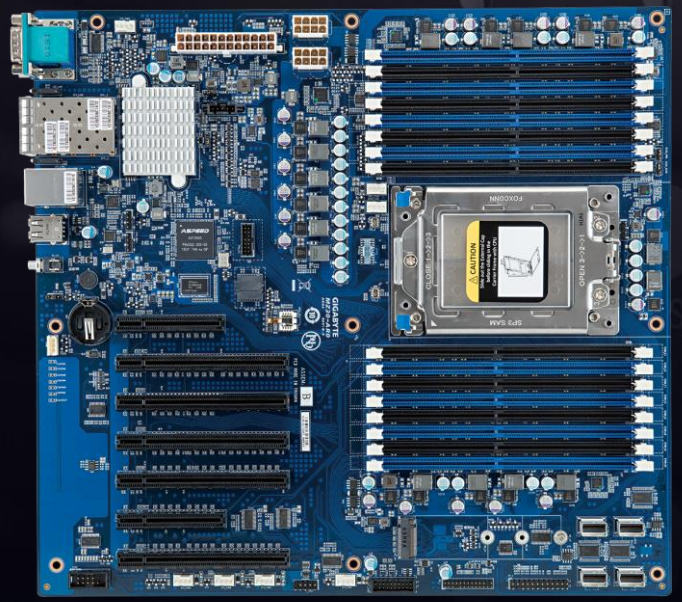
MORE I/O

GREATER DENSITY

LESS SPACE

LOWER POWER

DISRUPTING VOLUME 2S MARKET



- **Epyc 1S performance** ≥ **50%** Intel 2S offerings
- **Significantly lower** power consumption
- **Greatly reduced** operating expense
- **Up to 30%** TCO advantage[1]

(1) AMD estimate including SpecInt internal measurements. See Endnotes.

AMD

NO COMPROMISE
ONE SOCKET

Customers Can Match Systems to their Workloads Without Compromise

I/O Expansion | Memory Bandwidth | Memory Capacity

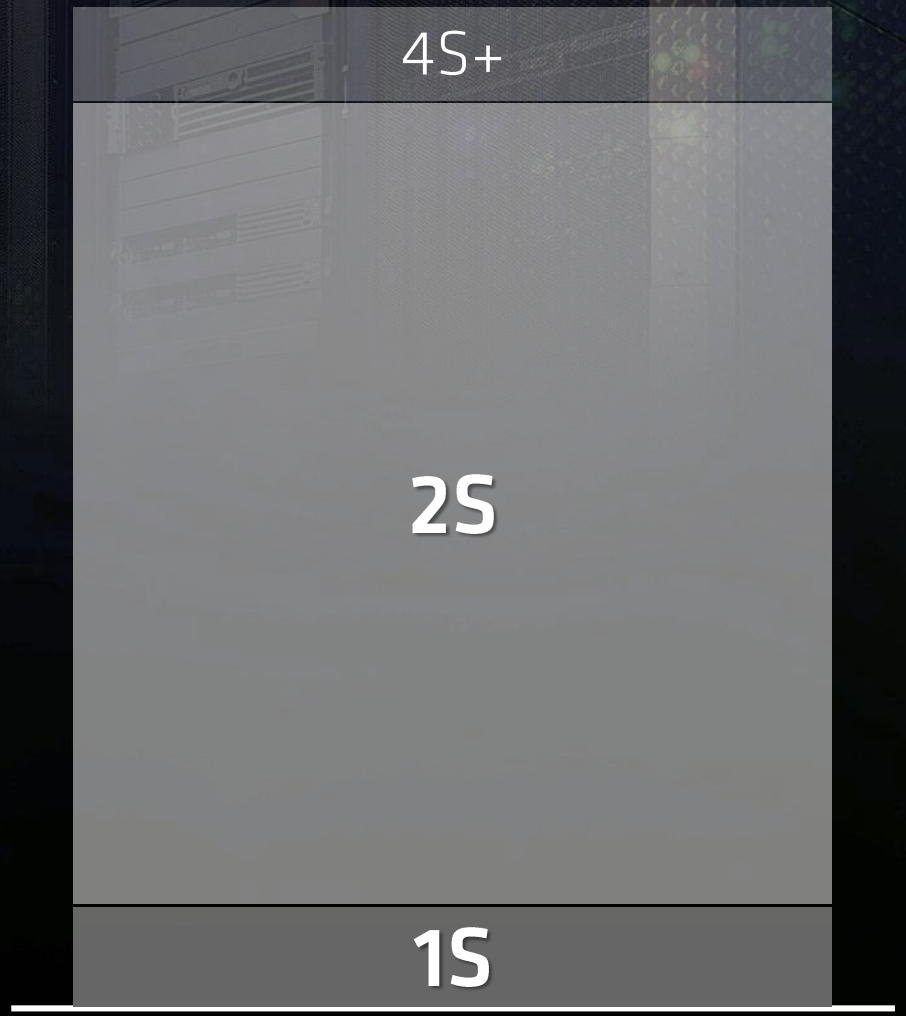
LEADERSHIP
TWO SOCKET

High-Performance, Balanced Architecture

More Cores | More Memory Bandwidth | More I/O

See Endnotes

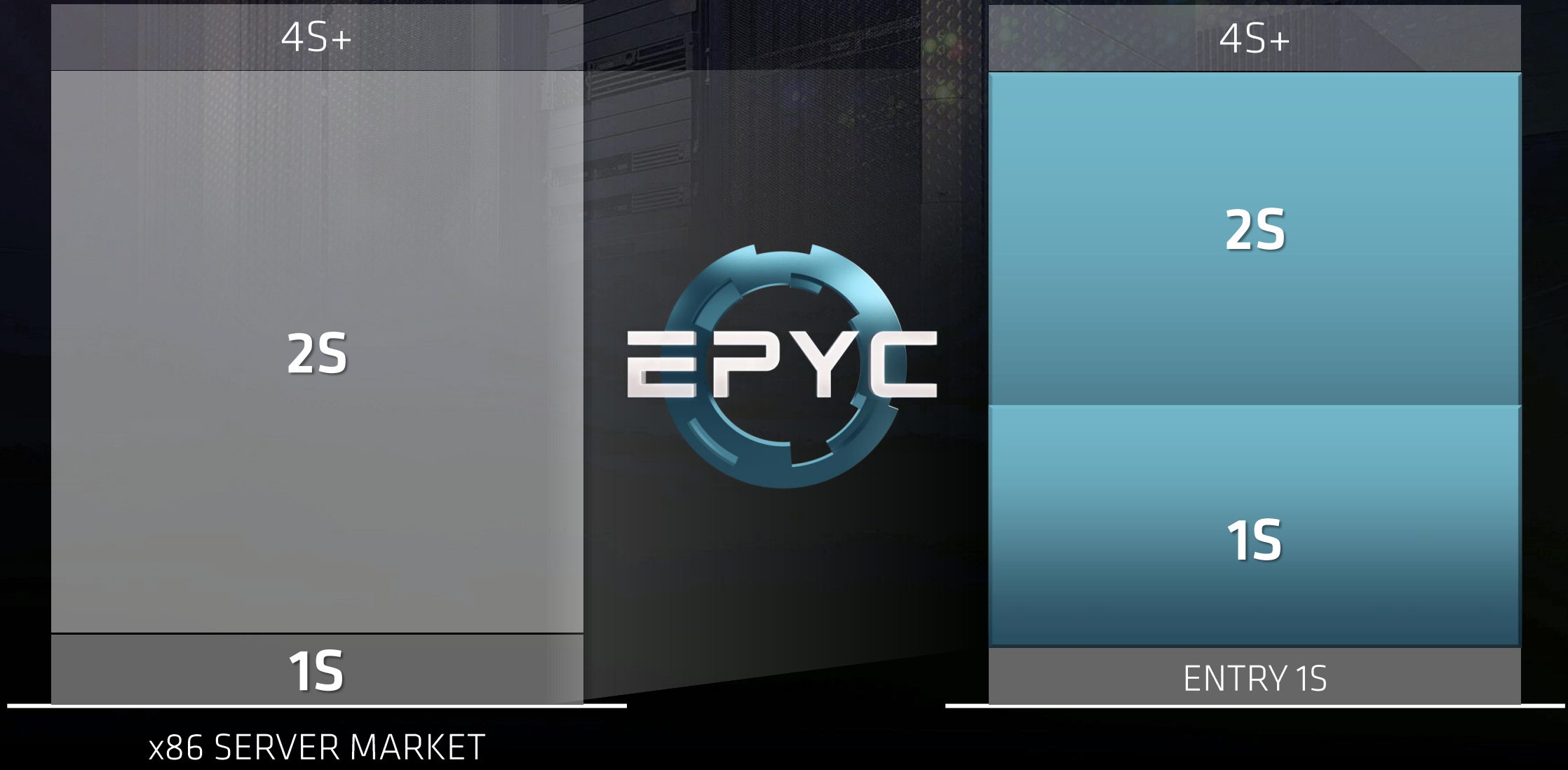
THE STATUS QUO



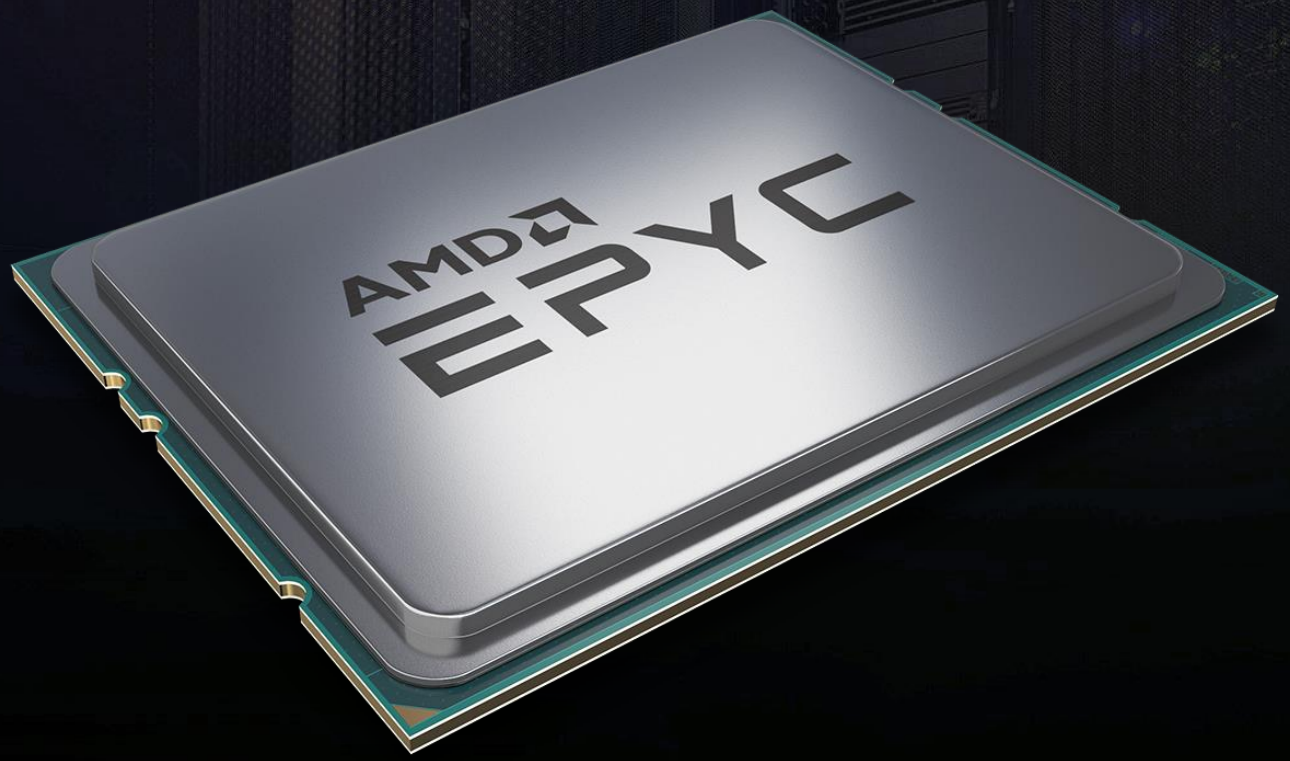
x86 SERVER MARKET

AMD

DISRUPTING THE STATUS QUO



DISRUPTING THE STATUS QUO



EVERY EPYC™ PROCESSOR IS UNRESTRAINED

- All I/O
- All reliability features
- All memory channels
- High-speed memory
- Complete security stack
- Integrated chipset

EPYC

LEADERSHIP

High Performance Compute

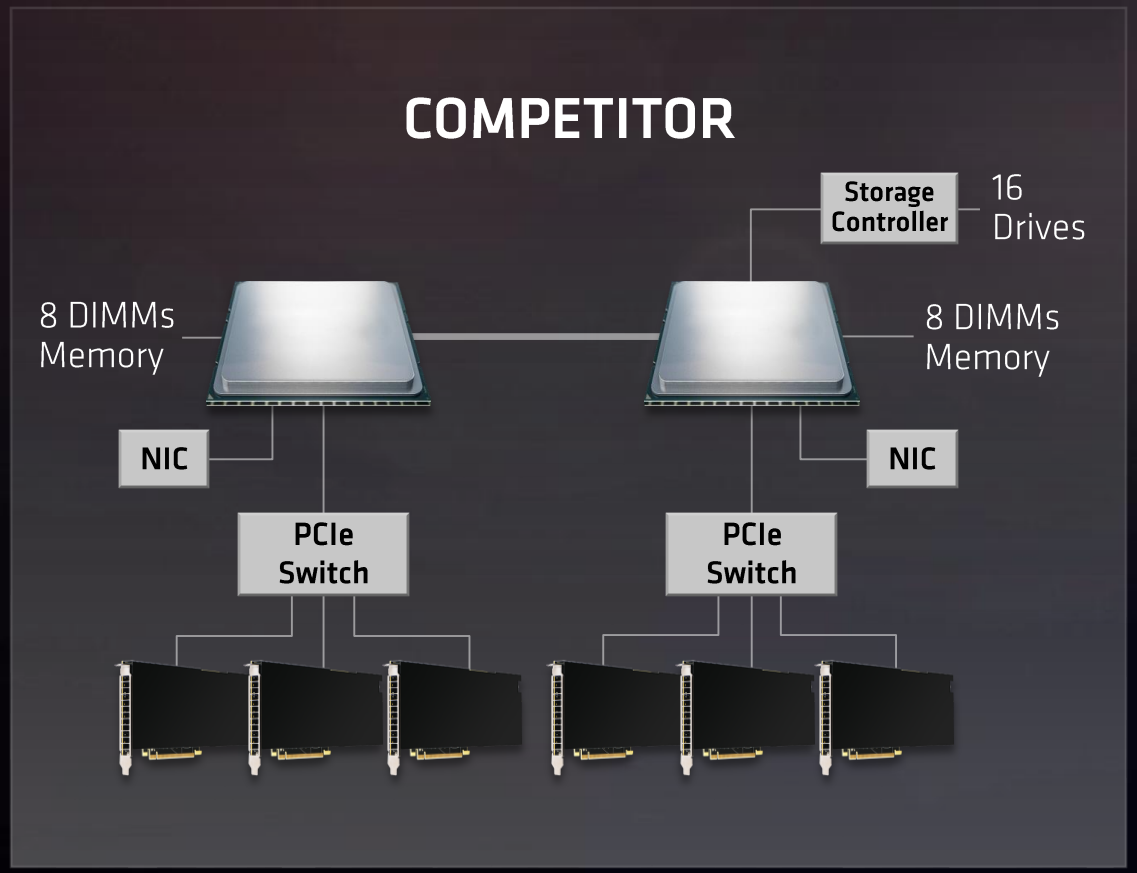
Cloud, Hyperscale, and Virtualization

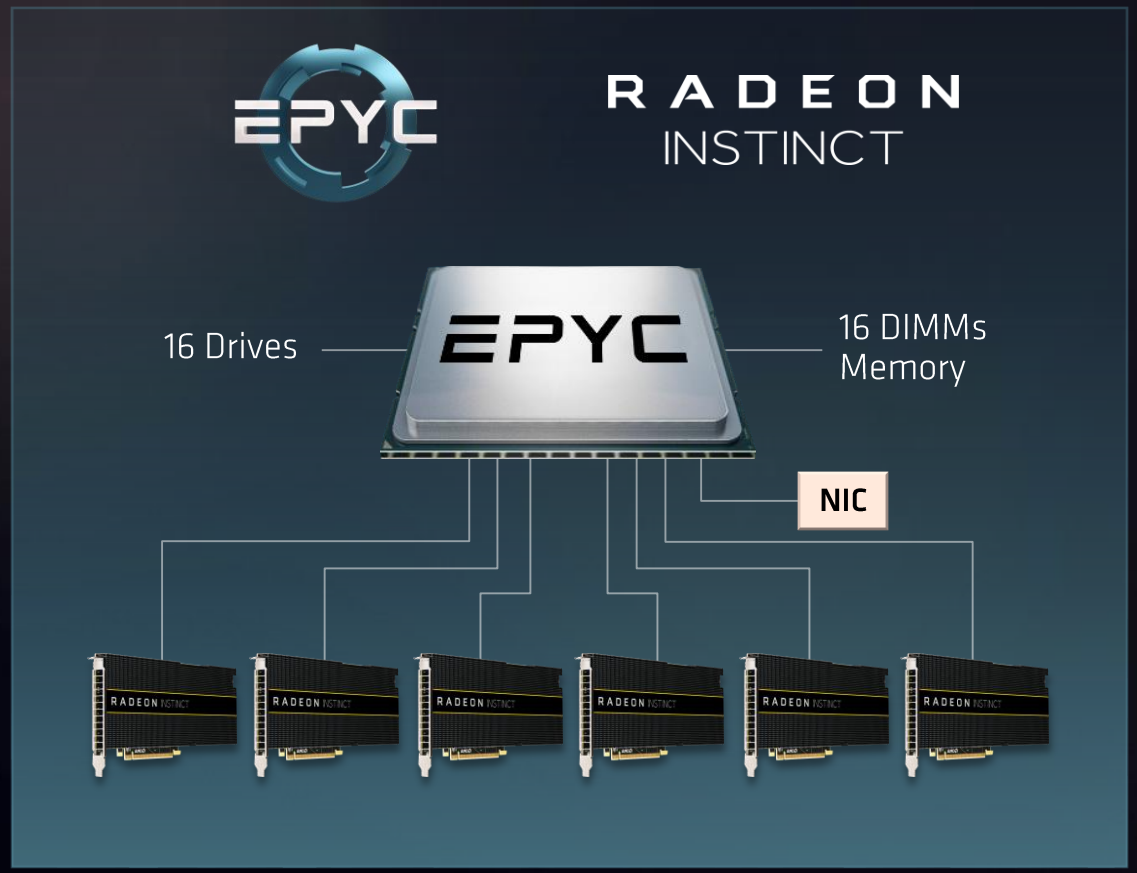
Machine Learning

Big Data and Analytics

Software-Defined Storage

A SIMPLIFIED MACHINE INTELLIGENCE ARCHITECTURE





Flexible Configurations | Open Ecosystem | Optimized Platforms | Lower TCO

AMD

MARKET MOMENTUM

30+

1S/2S Servers Expected in 2017

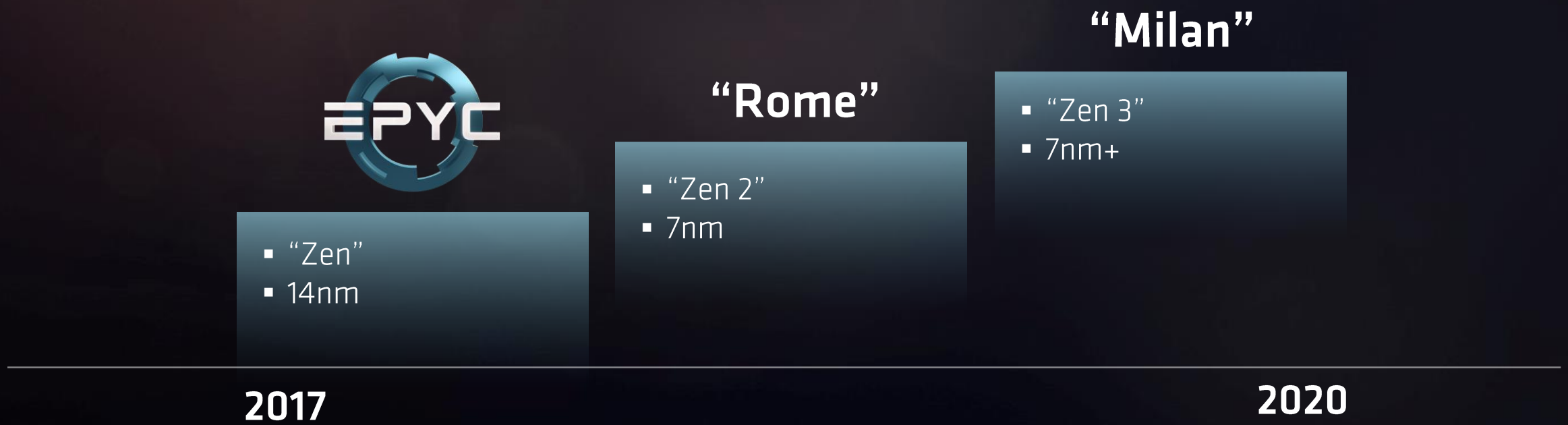
5000+

EPYC™ CPUs Seeded with OEMs, End Customers, and Partners

Programs Underway with Multiple Hyperscale Providers

June Launch

AMD LONG TERM DATACENTER COMMITMENT



Continuous Innovation | Performance Leadership

DATACENTER LEADERSHIP

Returning Innovation to Datacenter Market

Clear Choice for Key Workloads

Widespread Ecosystem Support

AMD is Back, Investing for the Long Term


AMD

END NOTES

Slide 15/22/24:

- 45% more cores – Epyc 32C versus Intel Xeon E5-2699A v4 processor with 22 Cores (Source: https://ark.intel.com/products/96899/Intel-Xeon-Processor-E5-2699A-v4-55M-Cache-2_40-GHz)
- 122% greater memory bandwidth – Epyc Max memory bandwidth of 170.7GB/s. Intel Xeon E5-2699A v4 max memory bandwidth of 76.8GB/s (Source: https://ark.intel.com/products/96899/Intel-Xeon-Processor-E5-2699A-v4-55M-Cache-2_40-GHz)
- 60% I/O Density advantage - Epyc maximum of 128 PCI Express lanes. Intel Xeon E5-2699A v4 maximum of 40 PCI Express Lanes per socket, 80 in a two socket configuration (source: https://ark.intel.com/products/96899/Intel-Xeon-Processor-E5-2699A-v4-55M-Cache-2_40-GHz).

Demo 1: Demonstration conducted by AMD Engineering using a 2P AMD reference system with 32-core Epyc™ processor engineering samples, and an Intel-based 2P OEM production platform, each running the same gcc compile of a bare-bones linux kernel, utilizing a d3 Sunburst Partition visualization (http://d3js.org). AMD 2P test platform used 256GB DDR4-2400; Intel Xeon E5-2699A v4 2P test platform used 128GB DDR4-2400. Both platforms ran the same version of VMware vSphere with Ubuntu 17.04 guests, with 8 VMs per server.

Slide 20: x86 Server Market Slide: Estimated 2P GCC SPECint®_rate_base2006 scores based off of maximum scores published at http://www.spec.org for specified processors. More information about SPEC CPU® 2006 can be found at http://www.spec.org

Demo 2: Demonstration conducted by AMD Engineering using an AMD reference system with a 32-core Epyc™ processor pre-production prototype, and an Intel-based OEM production platform, each running the same gcc compile of a bare-bones Linux kernel, utilizing a d3 Sunburst Partition visualization (http://d3js.org). AMD 1P test platform used 128GB DDR4-2400; Intel Xeon E5-2650 v4 2P test platform used 128GB DDR4-2400. Both platforms ran the same version of VMware vSphere with Ubuntu 17.04 guests, with 8 VMs per server.

Slide 23: Boards used include Intel HPE DL-380 Gen 9 and Epyc-based re-production Gigabite 1S server

Slide 23: 32-core Epyc TDP is 180 watts, compared to 2 x Intel 12-core E-2650 v4 TDP at 105 watts each; AMD internal estimate as of May 2017 based on the expected cost for 28 1-socket 32-core Epyc based servers compared to 21 2-socket Intel 12-core (24 total cores) E-2650 v4 based servers, assuming a 3-year useful life, 100% utilization, and electricity cost of $0.16/Kw hr. Assumes SPECint® score estimates of 697 for Epyc processor and 293 for a single E2650v4 processor scaled at 1.95x for 2 sockets. Additional information about SpecCPU®2006 can be found at www.spec.org. Estimate is based on AMD internal lab measurements/modelling and may vary.

DISCLAIMERS AND ATTRIBUTIONS

DISCLAIMER

The information contained herein is for informational purposes only, and is subject to change without notice. Timelines, roadmaps, and/or product release dates shown in these slides are plans only and subject to change. “Polaris”, “Vega”, “Radeon Vega”, “Navi”, “Zen” and “Naples” are codenames for AMD architectures, and are not product names.

While every precaution has been taken in the preparation of this document, it may contain technical inaccuracies, omissions and typographical errors, and AMD is under no obligation to update or otherwise correct this information. Advanced Micro Devices, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this document, and assumes no liability of any kind, including the implied warranties of noninfringement, merchantability or fitness for particular purposes, with respect to the operation or use of AMD hardware, software or other products described herein. No license, including implied or arising by estoppel, to any intellectual property rights is granted by this document. Terms and limitations applicable to the purchase or use of AMD's products are as set forth in a signed agreement between the parties or in AMD's Standard Terms and Conditions of Sale.

The information contained herein is for informational purposes only, and is subject to change without notice. While every precaution has been taken in the preparation of this document, it may contain technical inaccuracies, omissions and typographical errors, and AMD is under no obligation to update or otherwise correct this information. Advanced Micro Devices, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this document, and assumes no liability of any kind, including the implied warranties of noninfringement, merchantability or fitness for particular purposes, with respect to the operation or use of AMD hardware, software or other products described herein. No license, including implied or arising by estoppel, to any intellectual property rights is granted by this document. Terms and limitations applicable to the purchase or use of AMD's products are as set forth in a signed agreement between the parties or in AMD's Standard Terms and Conditions of Sale. GD-18