Adaptable, Intelligent - 5G Infrastructure

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Wireless System Architect
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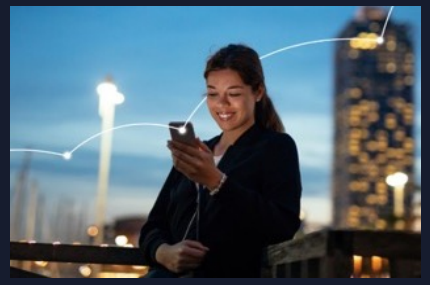
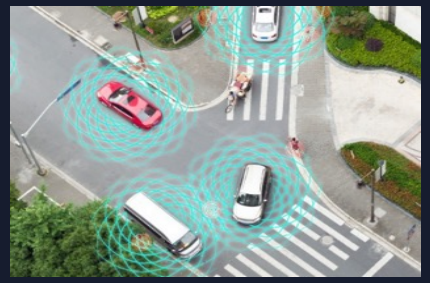
XILINX

3 Big Trends and Challenges



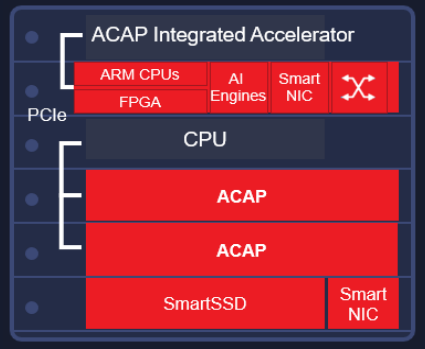
EXPLOSION OF DATA

- Video & image content
- 90% unstructured
- Need for higher throughput & real-time computing



DAWN OF AI

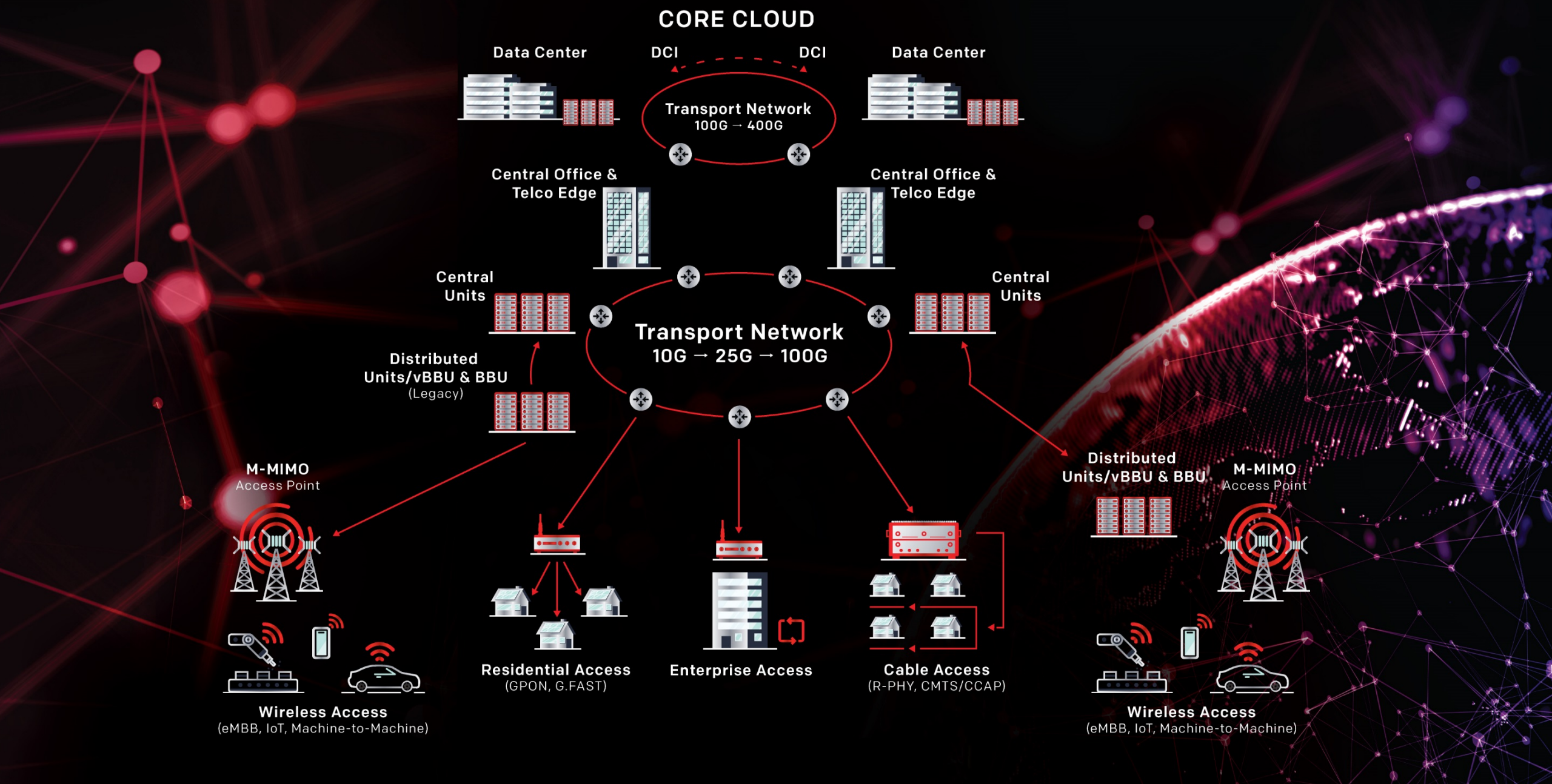
- Adding new intelligence into applications
- In all industries, from endpoints to edge to cloud
- Need for accelerated AI processing everywhere

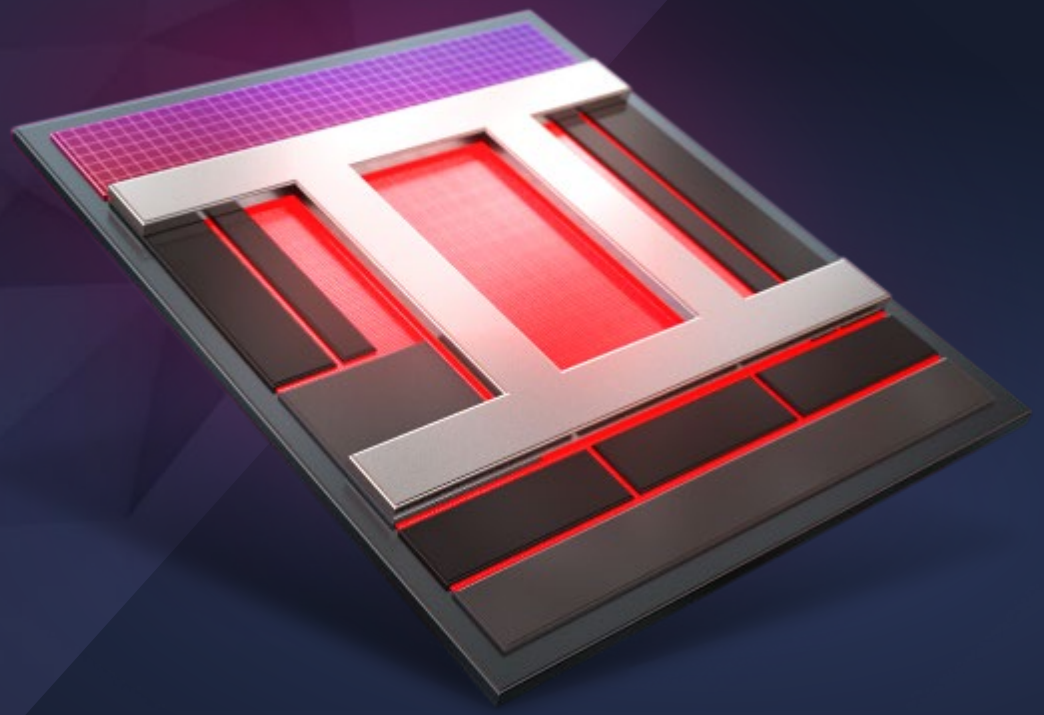


COMPUTING AFTER MOORE'S LAW

- Speed of innovation outpacing silicon cycles
- Breadth of apps require different architectures
- Need for heterogeneous computing with accelerators

Xilinx 5G Enabled Flexible Infrastructure





ACAP

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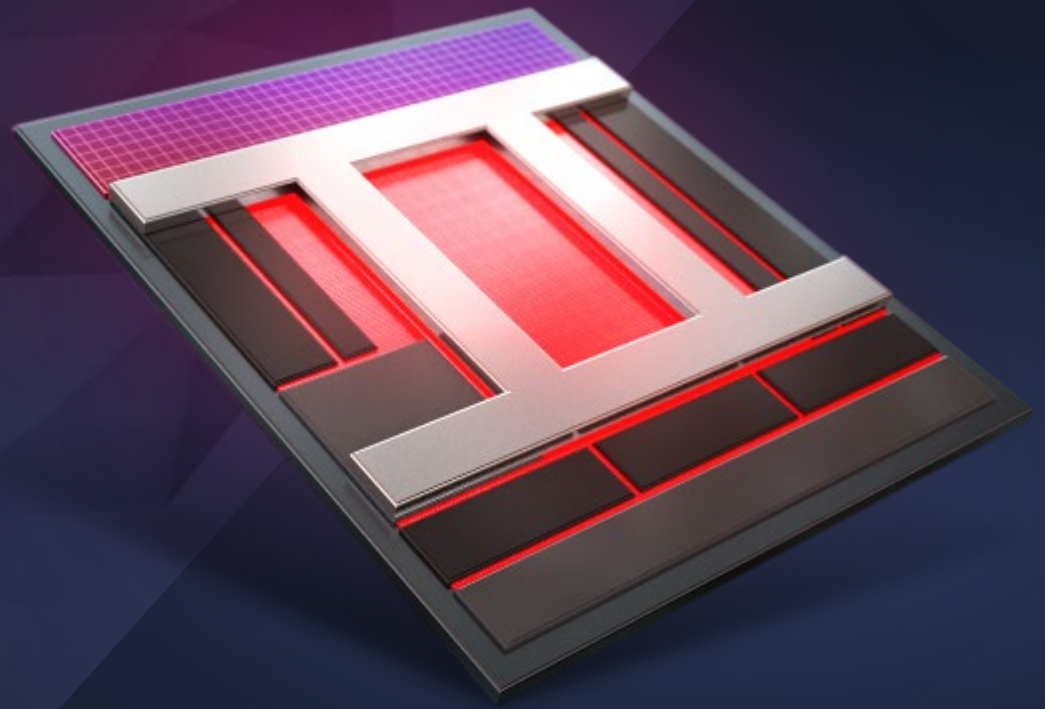

Adaptive Compute Acceleration Platform

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Intelligent Engines

DSP Engines

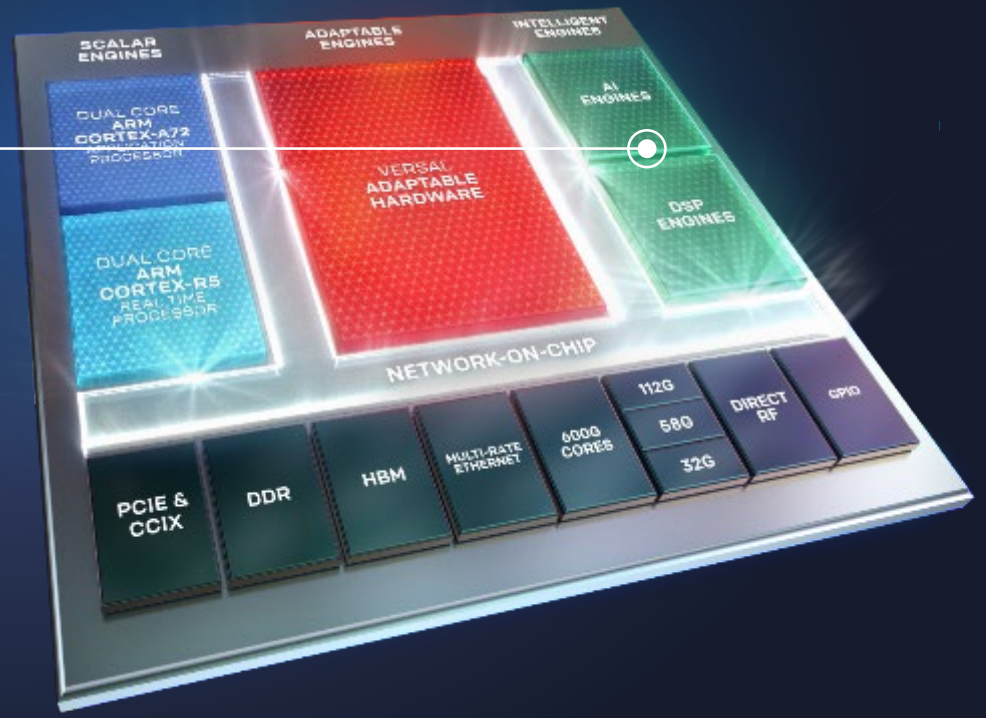
High-precision floating point & low latency

Granular control for customized datapaths

AI Engines

High throughput, low latency, and power efficient

Ideal for AI inference and advanced signal processing



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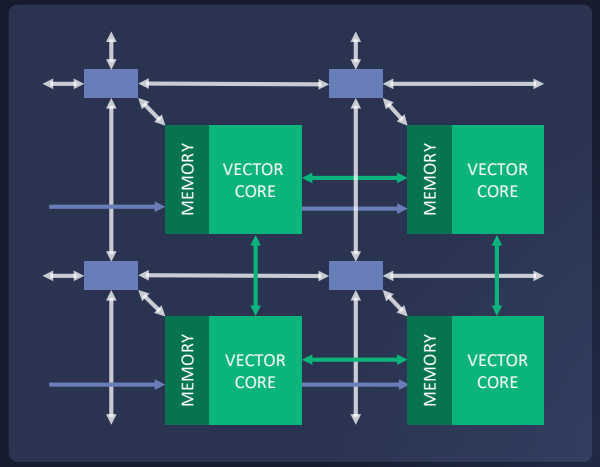
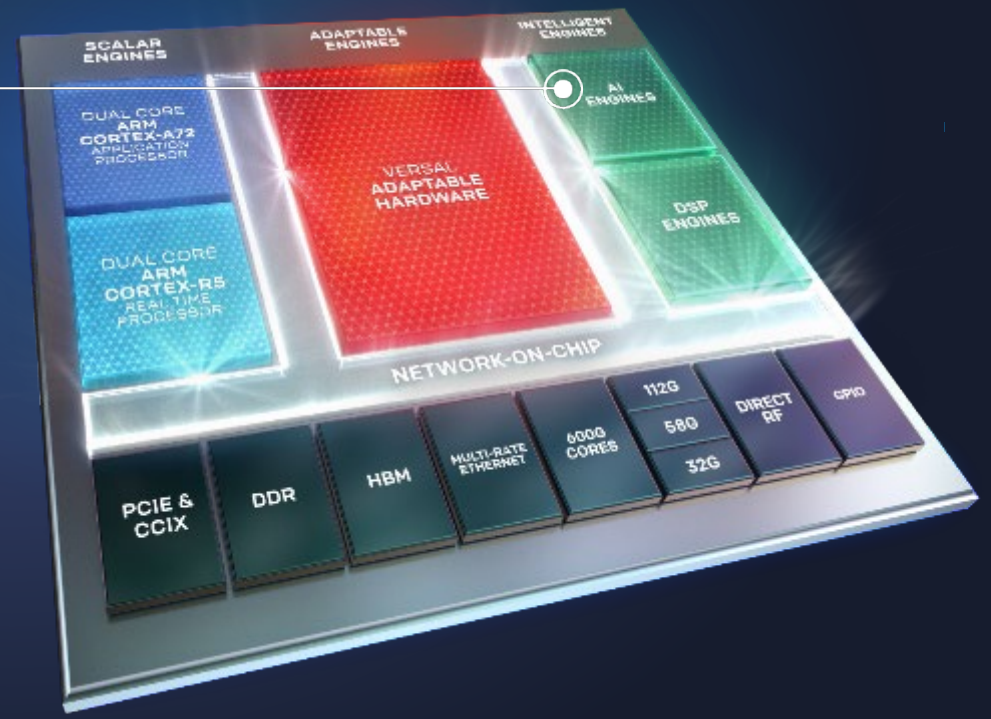


AI Engines

Optimized for AI Inference and Advanced Signal Processing Workloads

- >1GHz VLIW/SIMD vector processor cores
- Massive array of interconnected cores with tightly coupled memory
- Tightly coupled to adaptable hardware engine to enable custom memory hierarchy
- Software programmable, C-, and library-based with hardware adaptability



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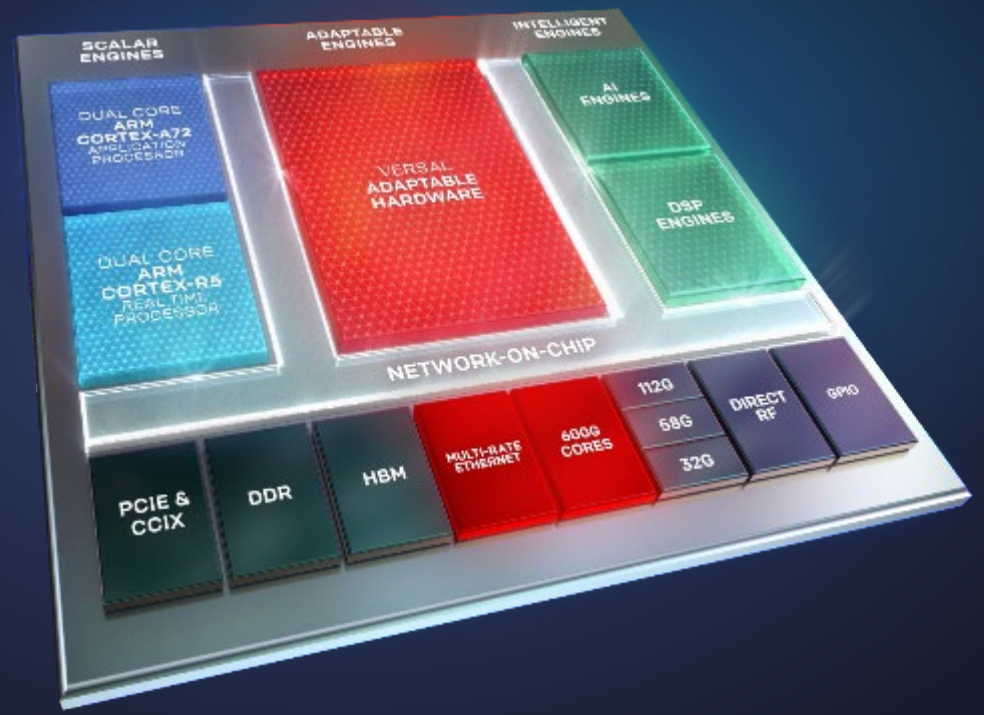
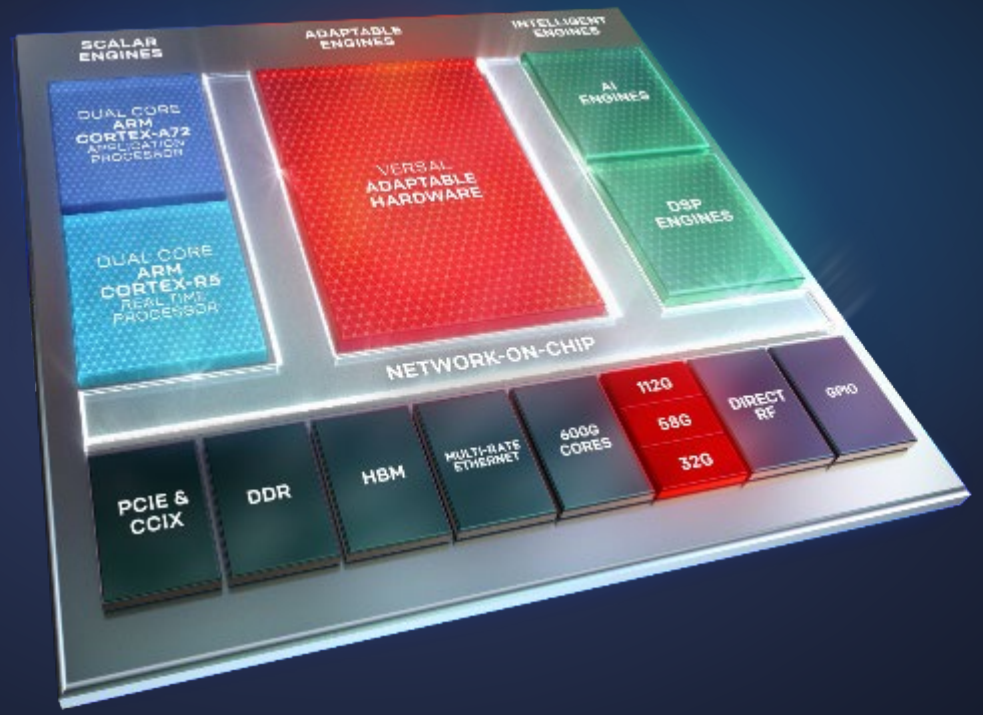


Integrated Protocol Engines

- 100G Multirate Ethernet
- 600G Ethernet and Interlaken
- 600G Cryptographic Engines (AES/IPSEC/MACSEC)



Broadest Range of Transceivers

- 32G power—Optimized for edge applications
- 58G PAM4—Now in mainstream devices
- 112G PAM4—Industry's highest performance

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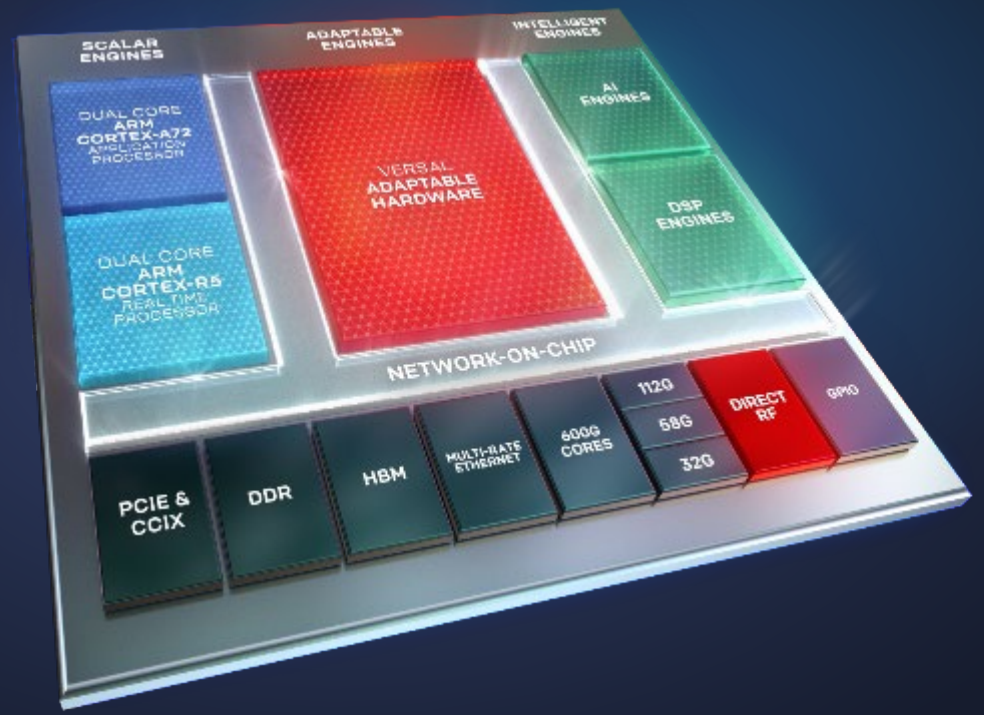

Integrated RF Signal Chain

- Next-generation multi-GSPS direct RF-ADC/DAC
- Integrated DDC/DUC
- SD-FEC for 5G and DOCSIS

Versal – Driving Adaptive Computing

The World's First ACAP – Adaptive Compute Acceleration Platform

SCALAR PROCESSING ENGINES

Complex algorithms for autonomous systems

ADAPTABLE HARDWARE ENGINES

Acceleration and HW differentiation

ADAPTABLE HARDWARE ENGINES

Breakthrough AI inference and signal processing

BREAKOUT INTEGRATION OF PROTOCOL ENGINES

For multi-terabit throughput and bandwidth

Xilinx Value Proposition for 5G

Adaptable, Intelligent 5G Infrastructure

- The Engine Behind 5G Radios & mMIMO Deployments
- End-to-End Adaptable 5G Communication Platforms
- FPGAs and Highly Integrated SoCs Featuring RF ADC & DACs, and AI/ML Acceleration Engines
- Highest Performance and Power Efficient mMIMO and Small Cell Radios
- The Path to a More Intelligent and Autonomous Radio Access Network

Adaptable.
Intelligent.

Thanks!

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