FPGA'S – THE DAWN OF A NEW ERA…

DAVID THOMAS – CHANNEL DIRECTOR INTEL PSG EMEA

PLEASE DO REACH OUT – FIND US @ THE ARROW STAND

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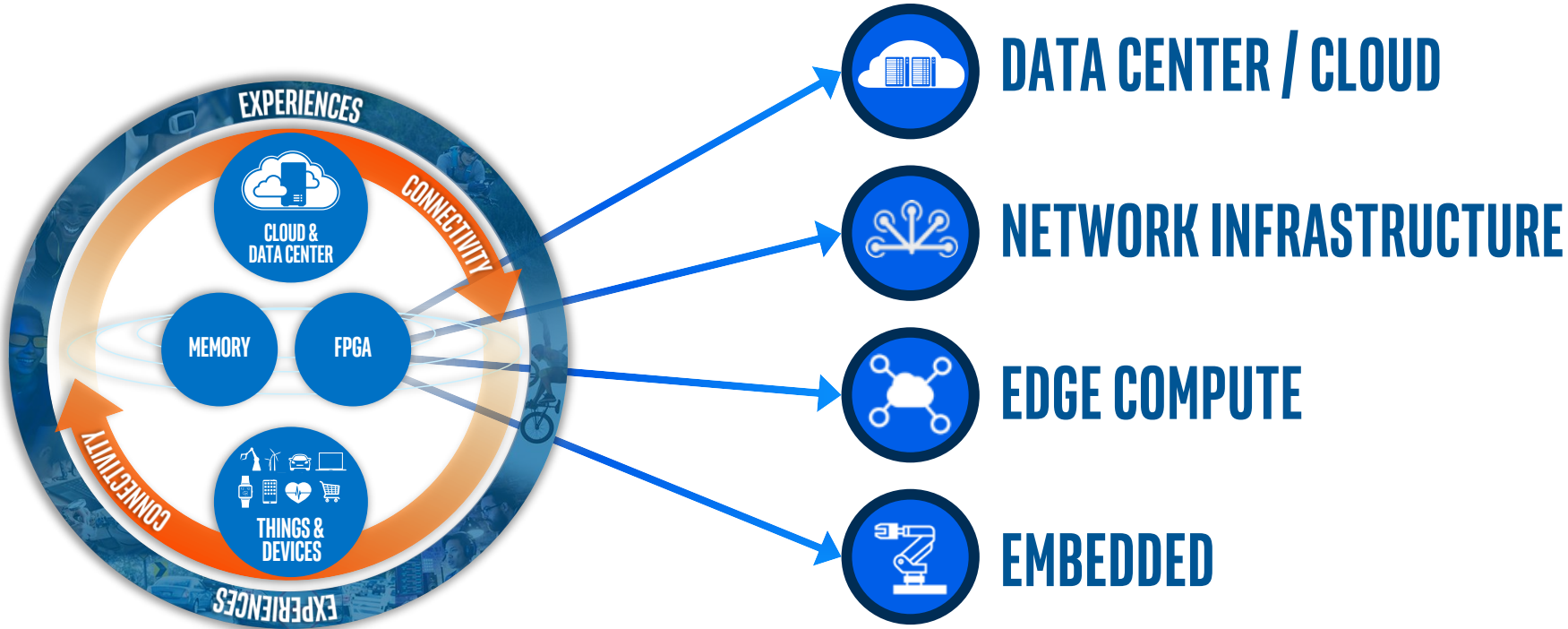
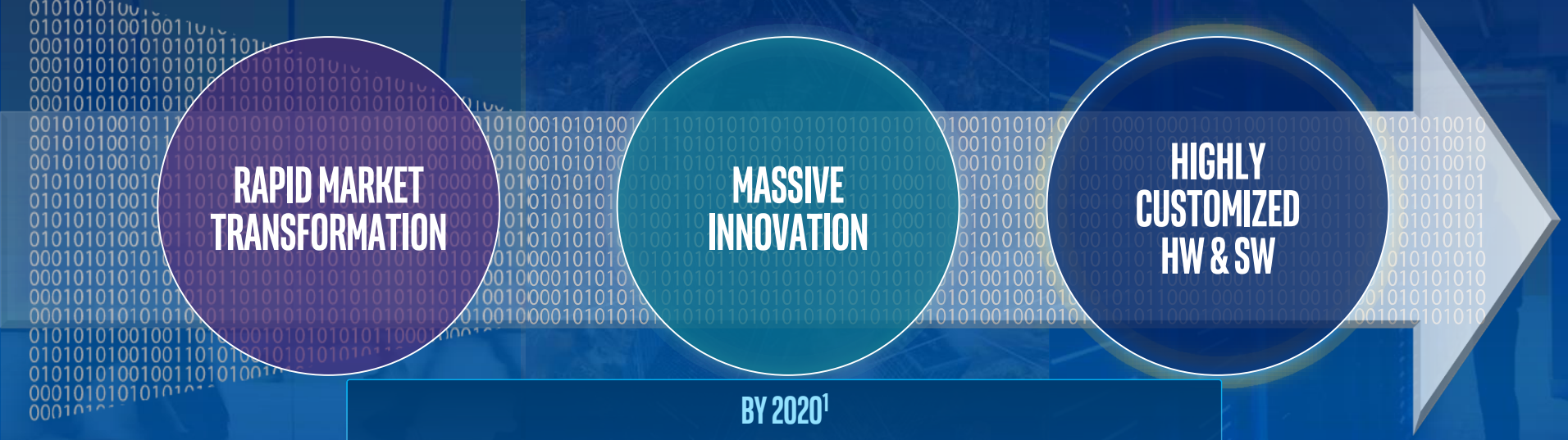
ACCELERATION WITH INTEL® FPGA'S

FPGA OUTLOOK

INTEL® FPGA : APPLICATION ACCELERATION FROM EDGE TO CLOUD



Massive Data Driving Market Change

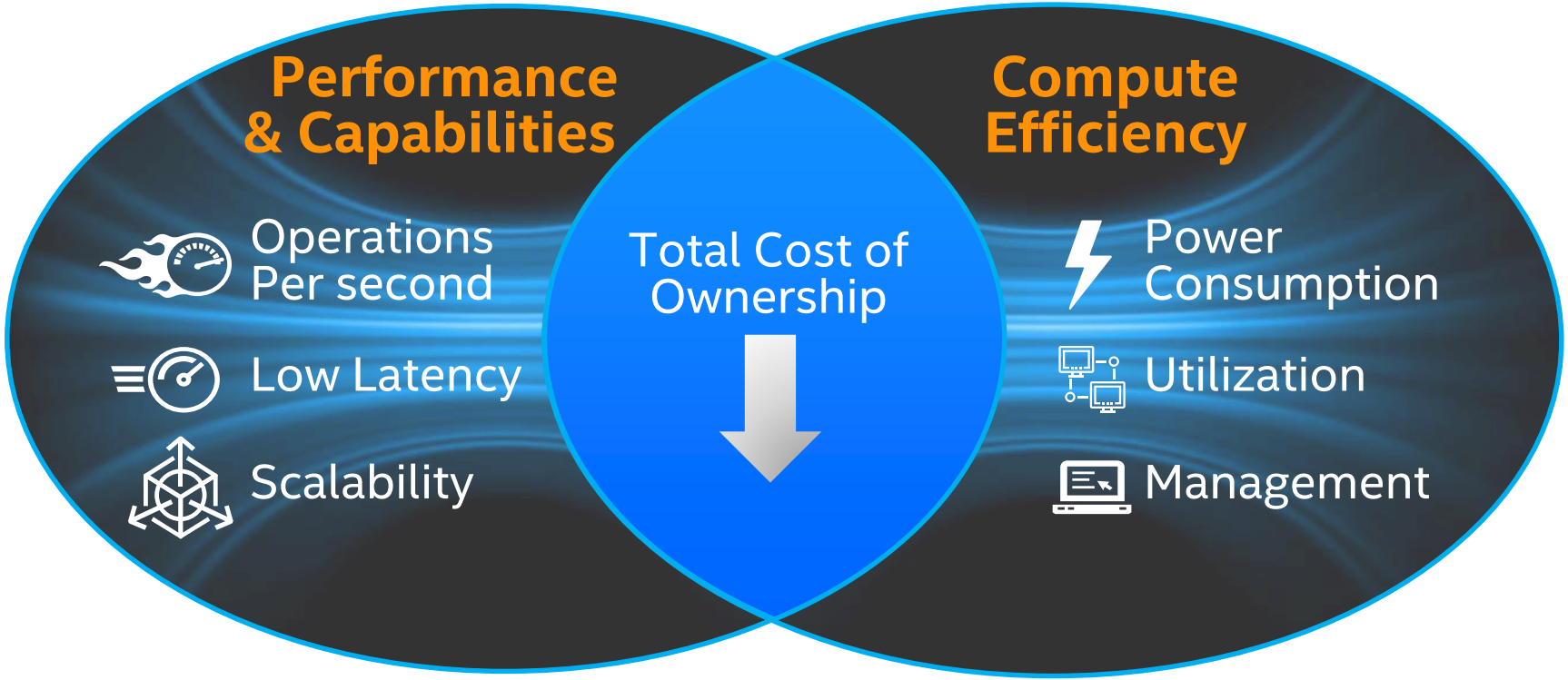


BY 2020[1]

AVERAGE INTERNET USER	1.5GB DATA/DAY	CONNECTED AIRPLANE	40TB DATA/DAY
SMART HOSPITAL	3TB DATA/DAY	SMART FACTORY	1PB DATA/DAY
AUTONOMOUS AUTOMOBILE	4TB DATA/DAY		

[1] Amalgamation of analyst data and Intel® analysis

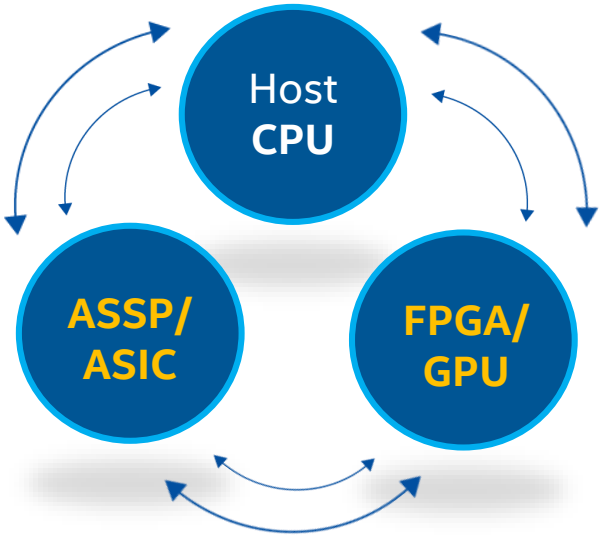
DATA CENTER CONSIDERATIONS



ACCELERATION CHOICES

Acceleration of compute means
HETEROGENEOUS COMPUTE

DEDICATED ACCELERATORS
for maximum compute efficiency of specific, stable functions



VERSATILE ACCELERATORS
for customized and changing workloads in networking, storage, and compute

INTEL® FPGA PAC PRODUCTS SOLUTION FEATURES

SERVER QUALIFIED/VALIDATED FLEXIBLE HARDWARE

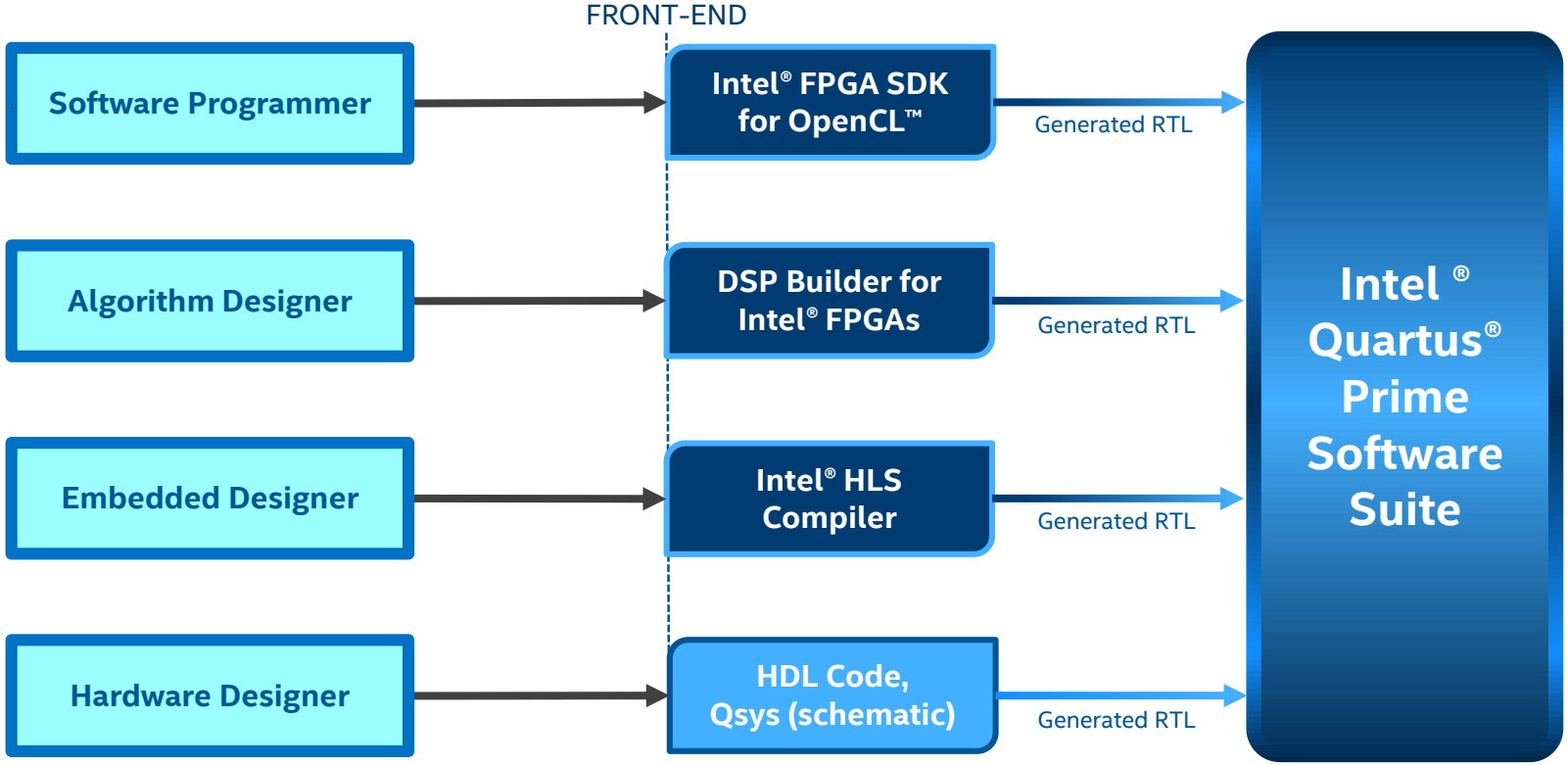
LOW LATENCY, DETERMINISTIC, HIGH PERFORMANCE

HIGH ENERGY EFFICIENCY (PROCESSING/WATT)

EASY DEVELOPMENT - OPENCL™, HLS, 3RD PARTY SOLUTIONS

COMPREHENSIVE SOFTWARE SUPPORT – ORCHESTRATION TO SILICON

FPGA HIGH-LEVEL DESIGN TOOL PORTFOLIO

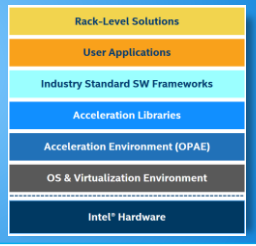


ACCELERATING DATA CENTER WORKLOADS

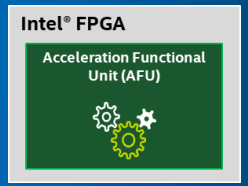
Supercharge Datacenter Performance & Reduce TCO with the Versatility of Intel® FPGAs

Intel® FPGA Programmable Acceleration Cards (PAC) Qualified on Industry-Leading Enterprise Servers

Acceleration Stack for Intel® Xeon® CPU with FPGAs



Acceleration IP From Application Experts



INTEL WORKLOAD ACCELERATION SOLUTIONS – READY NOW!

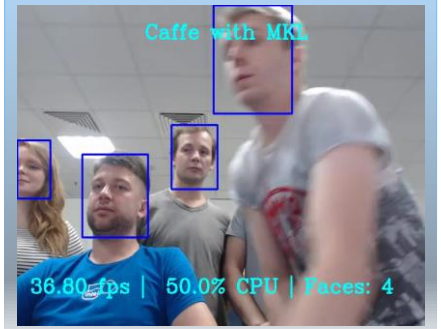
RENIAC	swarm64	Falcon COMPUTING	CTACCEL Accelerated Computing	MEGH COMPUTING	Levyx	napatech
No SQL Cassandra	Data Warehousing	Genomics GATK	JPEG2Lepton JPEG2Webp	Streaming Analytics	Financial Black Scholes	Network Security/ Monitoring
6X Performance	4X+ Performance	2.5X Performance	3-4X Performance	5X Performance	8X Performance	3X Performance
Deterministic low latency at higher Q/S	High Ingest rate with fast query/second	Speedup of Broad GATK pipeline	Transcode images faster	Real-time AI inference within Spark BigDL	Risk Analytics within Spark framework	Deep Packet Inspection at 40Gbps lossless
Est. 80% TCO savings	Est. 50% TCO savings	Est. 60% TCO savings	Est. 45% TCO savings	Est. 50% TCO savings	Est. 50% TCO savings	Est. 75% TCO savings

More on the way……

FPGA Edge Inference with OpenVino™

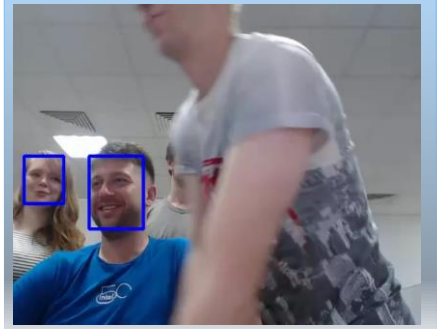
OPTIMIZED FOR SPEED

XEON + CAFFE* MKL



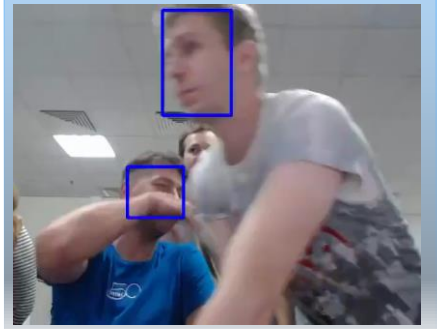
35+ FPS

XEON + OPENVINO™



240+ FPS

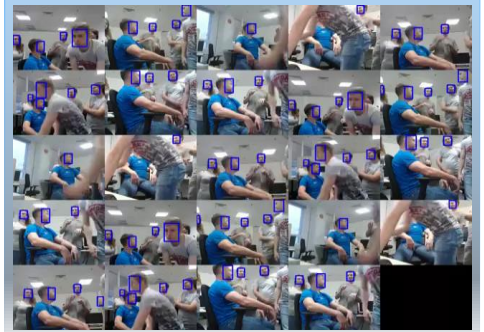
XEON + FPGA+ OPENVINO™



760+ FPS

OPTIMIZED FOR SCALE

XEON + FPGA+ OPENVINO™



24 CAMERA STREAMS WITH 35+ FPS

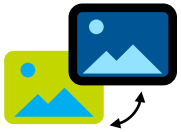
SUPERCHARGE DATACENTER PERFORMANCE & LOWER TCO WITH THE VERSATILITY OF INTEL® FPGA

Performance

- Programmable Hardware
- Programmable Software
- Low Latency & High Bandwidth

Efficiency

- Low Power through H/W specific accelerators
- Better Server Utilization



Versatility

- Choice of FPGA Platforms
- Growing Ecosystem of Accelerator Functions

Ease of Use

- Acceleration Stack
- Common User Interface
- IP Migration

I/O

FASTER WORKLOAD ACCELERATION

LOWER TOTAL COST OF OWNERSHIP

ADAPT QUICKLY TO EVOLVING WORKLOADS & STANDARDS

INCREASED PRODUCTIVITY

INTRODUCING THE FPGA FOR THE DATA-CENTRIC WORLD

INNOVATION ACROSS THE BOARD

MAX® inside™ — ***FPGA/CPLD***
Lowest Cost, Lowest Power

CYCLONE® inside™ — ***FPGA***
Cost/Power Balance SoC & Transceivers

ARRIA® inside™ — ***FPGA***
Mid-range FPGAs SoC & Transceivers

STRATIX® inside™ — ***FPGA***
Optimized for High Bandwidth

Intel® Enpirion® Power Solutions — ***PowerSoCs***
High-efficiency Power Management

RESOURCES

Embedded Soft and Hard Processors

Nios® II

ARM*

Design Software

Intel® Quartus® Prime Design Software

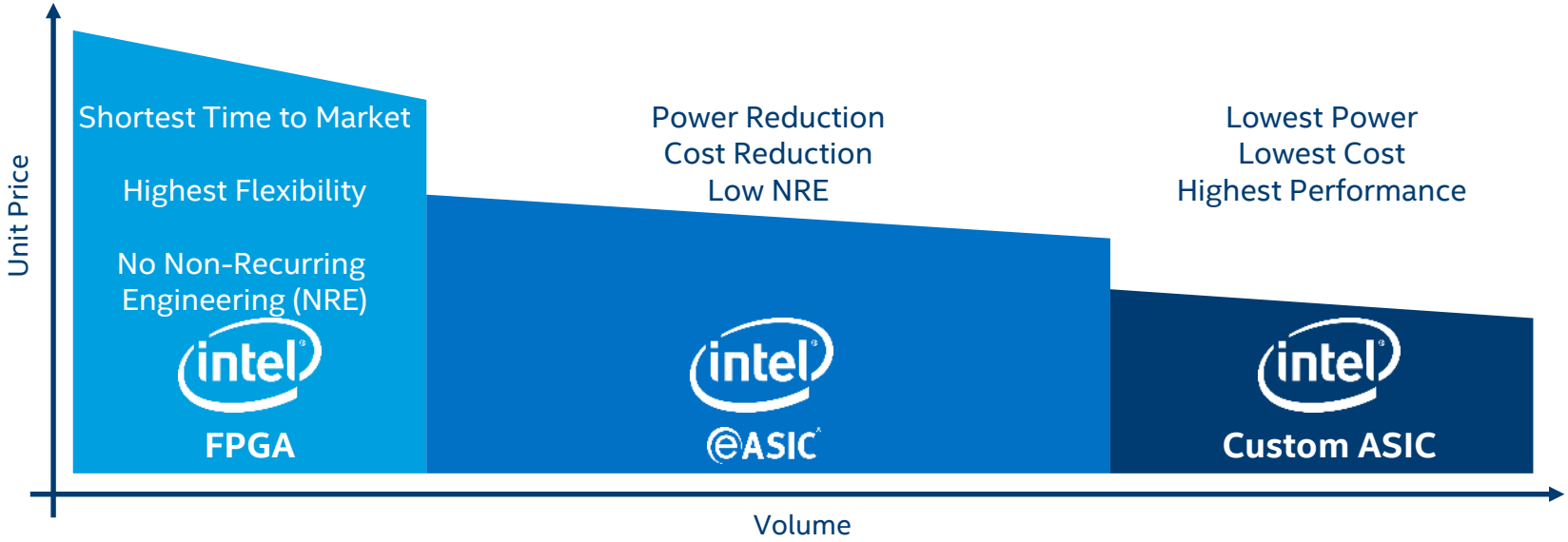
Intel® FPGA SDK for OpenCL™

Development Kits

Intellectual Property (IP)

- Industrial
- Computing
- Enterprise

The Complete Custom Logic Portfolio



Agilex : The FPGA for the Data-Centric World

PROCESS DATA

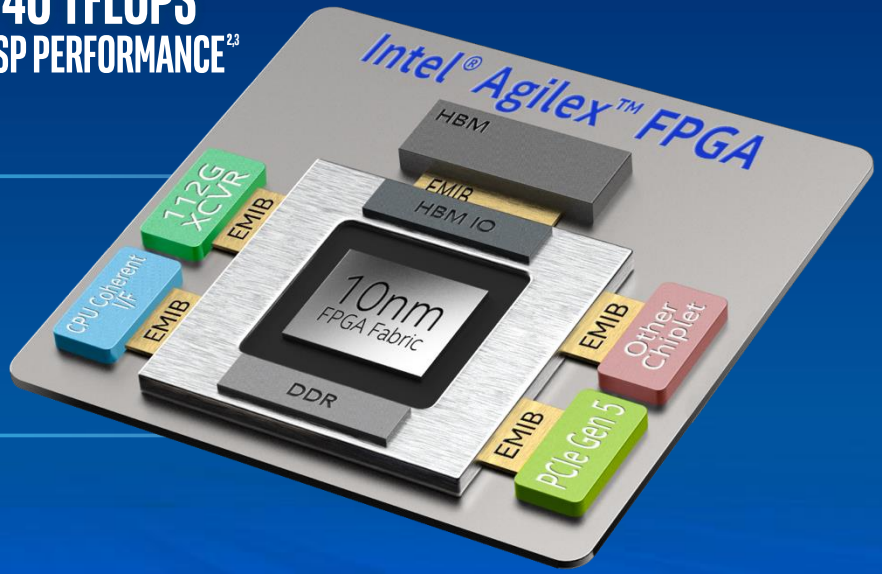
- 2ND GENERATION INTEL® HYPERFLEX™ ARCHITECTURE
- UP TO 40% HIGHER PERFORMANCE[1,3]
- UP TO 40% LOWER POWER[1,3]
- UP TO 40 TFLOPS DSP PERFORMANCE[2,3]

STORE DATA

- DDR5 & HBM
- INTEL® OPTANE™ DC PERSISTENT MEMORY SUPPORT

MOVE DATA

- INTEL® XEON® PROCESSOR COHERENT CONNECTIVITY & PCIE GEN5
- 112G TRANSCEIVER DATA RATES



[1] Compared to Intel® Stratix® 10 FPGAs
[2] With FP16 configuration
[3] Based on current estimates, see slide 21 for details

Intel® Agilex™ FPGA Tools for Developers

Hardware Developers

- Higher productivity:
  - 30% improvement in compile times[5]
  - New productivity flows and usability features for faster design convergence
- Higher efficiency: 15% improvement in memory utilization[5]

ONE API

Software Developers

- Single source, heterogenous programming environment
- Support for common performance library APIs
- FPGA support with Intel software development tools including Intel® VTune™ Amplifier & Intel® Advisor

[5]See slide 21 for details

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