

# Synopsys Design and Verification Tools Enable Successful Tape-outs by Early Adopters of New ARM Cortex-A75, Cortex-A55 and Mali-G72 Cores

New Optimized QuickStart Implementation Kits To Help Designers Quickly Achieve Target QoR Using Synopsys Design Platform

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## Highlights:

- Early adopters of ARM's latest IP – ARM Cortex-A75 and Cortex-A55 CPUs and Mali-G72 GPU – successfully tape-out using Synopsys' Design Platform, including Design Compiler Graphical, IC Compiler II and PrimeTime tools
- New QuickStart Implementation Kits (QIKs) and Services include Reference Implementations (floorplans and optimized scripts), reference guides and professional services to accelerate development of SoCs using Synopsys Design Platform tools with the Cortex-A75, Cortex-A55 cores, and ARM Artisan standard cells, memories and ARM POP IP
- Synopsys' Verification Continuum Platform used successfully by early adopters of ARM's new premium mobile platform include ZeBu emulation, HAPS prototyping, Virtualizer virtual prototyping, as well as VC Verification IP with support for DynamiQ technology and ARM AMBA interconnect

Synopsys, Inc. (Nasdaq: SNPS) today announced that early collaboration with ARM on its latest IP targeted at artificial intelligence applications, including the [ARM® Cortex®-A75](#) and [Cortex-A55](#) Central Processing Units (CPUs), the first based on ARM DynamiQ™ technology, and the [ARM Mali™-G72](#) Graphics Processing Unit (GPU), has resulted in successful early adopter tape-outs in advanced FinFET process technologies using Synopsys' Design Platform and Verification Continuum™ Platform. In addition, the collaboration has delivered QuickStart Implementation Kits (QIKs) that take advantage of the latest features in the Synopsys Design Platform to enable designers to more quickly achieve their target IC power, performance and area with the new ARM CPUs using ARM Artisan® standard cells, memories and ARM POP™ IP.

"The changing nature of compute requires designing SoCs to enable distributed intelligence that optimally balances compute efficiently from edge to cloud," said Nandan Nayampally, general manager, Compute Products Group, ARM. "Our early collaboration with Synopsys on design tools for the first Cortex-A processors with DynamiQ technology and the Mali-G72, has enabled our mutual partners to take advantage of the latest features from the Synopsys Design and Verification Platforms to achieve the performance, power and area required for devices to deliver extremely responsive and increasingly human-like experience."

To enable early adopters of ARM's new CPU IP to achieve excellent PPA results, Synopsys and ARM collaborated to develop QuickStart Implementation Kits (QIKs) for the high-performance Cortex-A75 and the high-efficiency Cortex-A55, which include the DynamiQ Shared Unit (DSU), to enable a new single-cluster design with new capabilities and more flexibility for multi-core processing. Each QIK includes a Reference Implementation (floorplan and optimized scripts) and a reference guide and takes advantage of key features of the Synopsys Design Platform, including:

- Synopsys physical guidance (SPG), automatic placement pre-clustering, automatic path groups and tuning in Design Compiler Graphical® and IC Compiler™ II solutions
- Layer promotion for critical nets in Design Compiler Graphical enabling focused optimization on the right nets, early in the design process
- Concurrent clock & data (CCD) optimization in IC Compiler II with a new solver-based multi-objective engine capable of trading off timing, area and power with minimum impact on run time
- Parametric On-chip Variation analysis throughout the flow, including signoff with PrimeTime® timing analysis, to enable ultra-low voltage designs
- Multi-corner multi-mode analysis enabled throughout the flow

Early adopters of ARM's new IP have also taken advantage of Synopsys' Verification Continuum Platform, including:

- Synopsys Virtualizer™ Development Kit (VDK) Family for ARM processors, including the ARM Fast Models for Cortex-A75 and Cortex-A55 processors

- Synopsys' ZeBu® emulation and HAPS® prototypes for Cortex-A75, Cortex-A55 and Mali-G72 processors
- Synopsys VC Verification IP (VIP) for the ARM AMBA® 5 protocol provides support for the ARM CoreLink™ CMN-600 and DMC-620 cores and includes system level test-suites, a system monitor, protocol-aware debug and performance measurement capabilities

Synopsys design consultants have assisted hundreds of companies with their ARM-based designs. To help designers take advantage of the new ARM processors and efficiently achieve their desired performance, power and area (PPA) targets, Synopsys offers a range of expert design services from a 4-week QuickStart Implementation Service, through consultative core-optimization to full turnkey core hardening.

"Working together for more than 20 years, Synopsys and ARM develop optimized design and verification solutions to enable mutual customer success when ARM IP products are released," said Deirdre Hanford, executive vice president and co-general manager, Synopsys Design Group. "Our collaboration on ARM's new Cortex-A75, Cortex-A55 and Mali-G72 processors enables our mutual customers to take advantage of innovative and stand-out features delivered by the tools in the Synopsys Design Platform and Verification Continuum Platform to achieve industry-leading PPA targets for their premium ARM-based designs."

## Availability & Resources

Synopsys customers may download the QIKs for the ARM Cortex-A75 and Cortex-A55 cores including the DSU, as well as Reference Implementations for other ARM cores, at <http://solvnet.synopsys.com/arm-ri> (QIKs for the new ARM cores are anticipated to be available mid-June, 2017). The Virtualizer Development Kit for ARM processors, including the ARM Fast Models for Cortex-A75 and Cortex-A55 processors are available today. HAPS prototyping and ZeBu emulation systems proven on the new CPUs and the Mali-G72 GPU are available today. Synopsys VC verification IP for the ARM AMBA 5 standard (including support for CoreLink CMN-600 and DMC-620) is available today. Synopsys also offers experienced, expert professional services to help designers achieve their design targets with ARM processors; the new QuickStart Implementation Service for the ARM Cortex-A55 processor is available today.

For more information, please register to attend the Designing with Leading-Edge Process Technology, CPU Cores and Tools breakfast on Monday, June 19<sup>th</sup>, 2017, at the Design Automation Conference in Austin, TX: <https://www.synopsys.com/company/resources/events/dac2017/events/arm.html>.

## About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software™ partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15<sup>th</sup> largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality. Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at [www.synopsys.com](http://www.synopsys.com).

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