

# Synopsys' Silicon-Proven DesignWare DDR IP for High-Performance Cloud Computing Networking Chips Selected by NVIDIA

DesignWare DDR IP Delivers High Performance Memory Interface for Compute-Intensive Artificial Intelligence Applications in Multiple Silicon Processes Including 7-nm

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## Highlights:

- Synopsys' high-quality DesignWare DDR PHY IP provides NVIDIA unmatched performance, latency, and power efficiency
- DDR PHY supporting multiple DIMMs per channel for DDR5/4 addresses NVIDIA's networking data rate and memory capacity requirements
- Field-upgradable firmware-based training enables a more robust and reliable channel and facilitates algorithm updates to reduce risk of adopting new memory protocols

Synopsys, Inc. (Nasdaq: SNPS) today announced that its silicon-proven [DesignWare® DDR5/4 PHY IP](#) will be used by Mellanox, NVIDIA's networking business unit, to address evolving memory requirements in its InfiniBand networking chips targeting high-performance computing and artificial intelligence (AI) applications. The high-quality DesignWare DDR5/4 IP with up to an 80-bit data path and support for multiple DIMMs per channel addresses essential data rate and memory capacity requirements as NVIDIA expands its efforts in high performance and cloud computing. DesignWare DDR5/4 PHY IP, a part of Synopsys' broad memory interface IP portfolio consisting of controllers, PHYs and verification IP for a wide range of processes, supports all the required features to help Mellanox integrate the IP into their ASICs and SoCs with less risk.

Synopsys' DesignWare DDR5/4 PHY IP offers firmware-based training, which is field upgradable without requiring changes to the hardware, to help customers reduce their risk of adopting new protocols. Firmware-based training also facilitates the use of complex training patterns, enabling highest margin and channel reliability at the system level. For power-efficiency, Synopsys' DDR5/4 PHY IP provides several low-power states with short exit latencies and multiple pre-trained states for dynamic frequency change capability.

"High-performance ASICs and SoCs for data-intensive networking and artificial intelligence applications require high-bandwidth off-chip memory technologies that efficiently minimize performance bottlenecks," said John Koeter, senior vice president of marketing and strategy for IP at Synopsys. "The DesignWare DDR5/4 PHY IP, operating at maximum data rates with differentiated features like firmware-based training, allows companies like NVIDIA to implement the latest functionality in their designs with less risk."

"Our choice of Synopsys' DesignWare IP for our latest InfiniBand solutions with in-network computing capabilities builds on our long history of integrating their high-quality IP into our silicon," said Shlomit Weiss, senior vice president of engineering at NVIDIA's Mellanox business. "Synopsys' DDR PHY IP is the best available solution to help us overcome stringent memory requirements, while giving us the quality, capacity, and performance we need to deliver differentiated products."

## Availability and Resources

The DesignWare DDR5/4 IP is available now. For more information, visit the [DesignWare Memory Interface IP](#) web page.

## About DesignWare IP

Synopsys is a leading provider of high-quality, silicon-proven IP solutions for SoC designs. The broad DesignWare IP portfolio includes logic libraries, embedded memories, embedded test, analog IP, wired and wireless interface IP, security IP, embedded processors, and subsystems. To accelerate prototyping, software development, and integration of IP into SoCs, Synopsys' IP Accelerated initiative offers IP prototyping kits, IP software development kits, and IP subsystems. Synopsys' extensive investment in IP quality, comprehensive technical support, and robust IP development methodology enable designers to reduce integration risk and accelerate time-to-market. For more information on DesignWare IP, visit <http://www.synopsys.com/designware>.

## 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 15th 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).

**Editorial Contact:**

Kelly James

Synopsys, Inc.

650-584-8972

[kellyj@synopsys.com](mailto:kellyj@synopsys.com)

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