

Synopsys Delivers Industry's First MIPI I3C IP for Sensor Connectivity Targeting IoT and Automotive Applications

DesignWare IP Compliant with the Latest MIPI I3C Specification Delivers High Bandwidth and Scalability

MOUNTAIN VIEW, Calif., April 26, 2016 /PRNewswire/ --

Highlights:

- I3C compliant IP future-proofs sensor designs and enables high data transmission for integration of multiple sensors on an SoC
- A single 2-wire I3C interface provides low pin count for power-efficient and cost-effective sensor connectivity
- Configurable transaction and data buffering enable performance versus cost tradeoffs for the target application
- I3C IP complements Synopsys' DesignWare MIPI CSI-2 Controller IP and D-PHY IP for a complete image sensor interface solution

Synopsys, Inc. (Nasdaq:SNPS) today announced immediate availability of the industry's first MIPI® I3CSM controller IP to ease the integration of multiple sensors into applications such as mobile, automotive and the Internet of Things (IoT). The Synopsys [DesignWare® MIPI I3C Controller IP](#) incorporates in-band interrupts within the 2-wire interface to deliver low pin count. The IP is compliant with the MIPI Camera Control Interface (CCI), I2C and MIPI I3C specifications, allowing designers to scale and future-proof their sensor interface designs. In addition, the controller IP supports master and slave operating modes, enabling systems with several ICs to efficiently connect to all sensors on a single I3C bus. With the DesignWare MIPI I3C Controller IP, designers can integrate more sensors into a system while simplifying board design and reducing overall cost and power.

"MEMS and sensors are being adopted at an increasing pace. Semico Research projects from 2015 to 2020 the CAGR is 20.4% for MEMS and sensors across all markets. Some applications have as many as 10 or more MEMS and sensors and growing. In addition, there are applications with multiple sensor hub controllers and apps processors," said Tony Massimini, chief of technology at Semico Research and Consulting Group. "Synopsys has been developing its I3C IP since the early stages of I3C development. Semico foresees MIPI I3C adoption for several applications beyond smartphones such as IoT, wearables, automotive, and more."

The DesignWare MIPI I3C Controller IP supports all data rates up to 26.7 Mbps, dynamic address allocation, multi-master operations and 32-bit ARM® AMBA® Advanced Peripheral Bus (APB) slave interface. The standards-based APB interface connects the IP to the rest of the SoC while the bus is connected to the register and Direct Memory Access (DMA) interfaces, enabling easy IP integration. The combination of the DesignWare MIPI I3C Controller IP with Synopsys' silicon-proven DesignWare MIPI CSI-2SM Controller, D-PHYSM, verification IP and IP Prototyping Kits enables designers to have a complete image sensor interface solution.

"As an active member of the MIPI Alliance for more than 10 years, Synopsys continues to drive the development of key protocols such as I3C to help enable the ecosystem," said Joel Huloux, chairman of the board of MIPI Alliance. "Synopsys offers designers a high-performance interface IP solution that they can leverage to future proof their legacy I2C devices and utilize the new I3C specification to quickly develop their unique products in mobile applications and beyond."

"Designers are adding more sensors into systems to deliver sophisticated functionalities such as touch, motion, proximity and others," said John Koeter, vice president of marketing for IP and prototyping at Synopsys. "The DesignWare MIPI I3C Controller IP provides a scalable interface solution that enables designers to efficiently integrate required sensor connectivity into their systems, while meeting challenging performance, power and cost constraints of their target application."

Availability and Additional Resources

The Synopsys DesignWare MIPI I3C Controller IP is available now. For more information, please reference Synopsys' DesignWare MIPI I3C Controller IP [datasheet](#).

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 enables

designers to reduce integration risk and accelerate time-to-market. For more information on DesignWare IP, visit <https://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 16th 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 quality and security solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest quality and security, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at www.synopsys.com.

About MIPI Alliance

MIPI® Alliance (MIPI) develops interface specifications for mobile and mobile-influenced industries. There's at least one MIPI Alliance specification in every 2016 smartphone. Founded in 2003, the organization has more than 265 member companies worldwide, more than 14 active working groups, and has delivered more than 45 specifications within the mobile ecosystem in the last decade. Members of the organization include handset manufacturers, device OEMs, software providers, semiconductor companies, application processor developers, IP tool providers, test and test equipment companies, as well as camera, tablet and laptop manufacturers. MIPI is a registered trademark of MIPI Alliance. MIPI I3C is a service mark of MIPI Alliance. For more information, please visit www.mipi.org.

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