



ANDES in Sight

ANDES TECHNOLOGY Newsletter

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Photo Courtesy Nissan

Weltrend Picks Andes N1337 For Its WT8893 Around View Monitor Chip in Major SUV

Weltrend Semiconductor, Inc. a leading fabless semiconductor company based in Hsinchu, Taiwan has adopted the **AndesCore N1337**, a synthesizable general purpose 32-bit embedded processor core, for their WT8893 Around-View Monitor (AVM) chip. The Andes 32-bit CPU core enables the Weltrend WT8893 AVM chip a more cost-effective, lower power alternative to the DSP core typically found in other AVM chip designs—a competitive advantage in a fast growing AVM processor market.

“The competition to win designs in advanced driver assistance system (ADAS) with major automotive electronics system supplier is intense and requires a technical edge,” said Chao-Chee Ku, Ph.D., Senior Director of Product Marketing of Weltrend Semiconductor. “Our WT8893, for

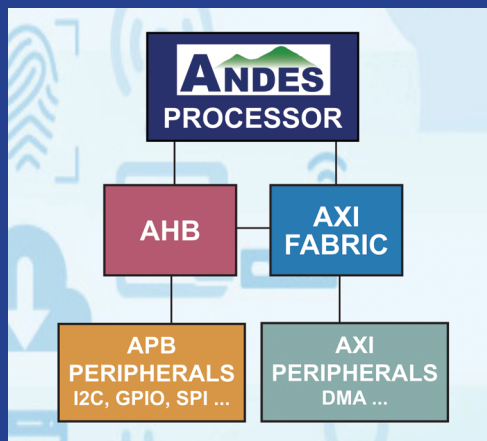
example, includes CVBS (color, video, blanking and sync) input from four channel video decoders. It has four individual contrast/brightness adjustment functions, input image position adjustment function to correct the camera assembling error. It offers video image processing, fisheye correction, and perspective adjustment. It also has capability to combine front/rear/left/right four images to top view with adjustable image size and boundary fusion processing, as well as other functions. Andes exceeded our expectation in product and service. The core provides savings on area and power and also delivers better performance compared to competitive offerings containing a digital signal processor to perform the same operations. We achieved a technical advantage with Andes' 32-bit RISC CPU core.”

“From our founding, Andes Technology has architected its AndesCore processors based on input from customers, including Weltrend Semiconductor, a customer since 2009,” said Frankwell Lin, President of Andes. “Our synthesizable general purpose 32-bit embedded processor core N1337 used in WT8893 reflects this response to customer requirements. It comes with a coprocessor interface for FPU unit and software management multi-core instructions and with variety of configuration options including MMU, cache and local memory. It can be configured for performance sensitive applications running embedded Linux or other advanced operating systems. It can also be configured with a memory protection unit (MPU) for real-time operating system (RTOS) applications.”

About the AndeShape Platform IP

To shorten time to market, Andes Technology provides SoC designers peripherals—AndeShape™ Platform IP—and a flexible embedded software development tool—AndeSight™ Integrated Development Environment—to rapidly develop embedded SoCs. **AndeShape Platform IP** comes in three versions: the new AE300 and AE100 and the AE210.

The newest of the three, the **AE300** has at its core the AXI Bus Matrix varying in width of 32, 64, and 128 bits. Based on the open AXI standard, AE300 comprises AXI fabric and AHB/APB bridge IP. The matrix handles address translation between multiple bus masters and slaves, with address widths varying between 24 to 64 bits. The matrix can accommodate up to 16 masters and 31 slaves. To accommodate devices with differing bus



widths, the AXI Bus Matrix contains various up-sizing and down-sizing elements. With flexible addressing scheme the AE300 can operate concurrently with different I/O and memory-addressing requirements.

The AE210P provides a wide range of highly-optimized standard peripherals to simplify and accelerate SOC development for MCU applications. Also, newly announced is the AE100, which is part of the QuickStart Design Package for entry-level IoT SoCs.

Andes Ultra High Performance Low-Power N705 Designed In Sino Wealth Electronic's New BLE Chip

Sino Wealth Electronic, a Shanghai Informatization Office (SIO) top hi-tech enterprise for 11 years, has designed the **AndesCore N705 CPU** into their low energy Bluetooth chip. Andes Technology Corporation won the design by providing 42 percent better DMIPS/mW performance efficiency over its major competitor for the business. "Our IoT SoC customer required

a superior CPU core to solve their design problem, but to provide them the service and support to help them maintain their high reputation."

About the Andescore N7

The N7's ultra-low power consumption and small size was created for performance constrained SoC designs, such as controllers for network

connectivity applications including low energy Bluetooth in IoT (Internet-of-Things), storage, and sensors. The N7's features the latest AndeStar™ V3m



a reliable, small and low power Bluetooth solution," said Zhisheng Guo Deputy General Manager Sino Wealth Electronic. "We have licensed several Andes cores for our chip designs because they provide the better solution over competitive alternatives. During our product development, Andes provided the immediate support our engineers needed to complete their designs within our tight project windows. Thanks to the contribution of Andes' and our other supply chain partners, our BLE chip is now shipping in mass production."

"We are thrilled to have Sino Wealth Electronic as a long standing Andes customer," said Charlie Hong-Men Su CTO and Senior Vice President of R&D and Technical Marketing. "Sino Wealth has the reputation as one of the first IC design enterprises recognized by Shanghai Informatization Office (SIO) as a Shanghai hi-tech enterprise and has maintained the title for the past 11 years. As a partner, Andes has a responsibility to provide not only

architecture and a 2-stage pipeline that helps deliver an impressive 168 DMIPS/mW, >40% better than competitive products. Its FlashFetch technology can boost performance of slow flash memory without consuming added power. **The AndesCore™ N7** can be as small as 13K gates. This makes it an ideal alternative to the 8051 and other 8-bit processor cores, while delivering the benefits of performance-efficiency, programmability and compact code size of a 32-bit processor solution.

About Bluetooth® Wireless Technology

Bluetooth technology is the global wireless standard for simple, secure connectivity. Propelled by a global community of nearly 30,000 companies, Bluetooth serves to unify, harmonize, and drive innovation in the vast range of connected devices all around us. Through collective creation and shared technical standards, Bluetooth simplifies, secures and enriches the technology experience of users worldwide. Find out more at www.bluetooth.com.

About the AndeCore™ Processor Family

Andes' family of low-power 32-bit CPU processors satisfy a wide range of applications such as mobile, digital-home, industrial, and automotive designs. The family starts with the 2-stage pipeline N7 and 3-stage pipeline N8, which comes in a high-security version, the S8, and a configurable version called the E8. The midrange N9 and N10 each have a 5-stage pipeline. The N10 comes in an efficient DSP-enabled version, the D10, with 130 DSP instructions, utilizing only a single-cycle, 32x32 hardware multiplier. The D10 supports 16-bit and 8-bit SIMD instructions, plus 64-bit signed and unsigned addition and subtraction.

The high-end 8-stage pipeline N13 operates at a clock rate over 1 GHz delivering impressive 2.05 DMIPS/MHz performance to serve the most demanding computing environments. It comes with Memory Management Unit, L1/L2 cache, Local Memory, DMA, FPU, Vectored Interrupt, and Branch Prediction, The N13 easily runs complex operating systems such as Linux.

The AndeCore™ family offers features ideal for IoT applications: CoDense™ for very compact code size; StackSafe for automatic stack overflow detection; PowerBrake to scale frequency and power without a clock divider; QuickNap for automatic CPU state save/restore for fast power-down/power-up; and FlashFetch, which is separate IP to speed up internal Flash and allow execute-in-place external Flash support.

Evaluate Andes IP Cores

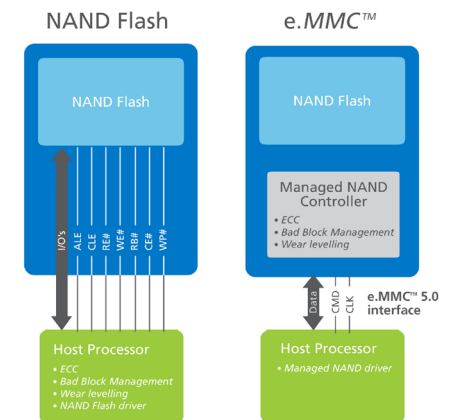
Andes has over 115 licensees and in 2016 Andes-embedded products shipped in more than 420 million devices around the globe from licensees in Taiwan, Japan, Korea, China, Europe, and USA. The company is expanding into the Americas.

If you have an SOC design in need of a low power, low cost CPU with full toolchain and peripheral support, contact us to arrange a free evaluation. Let us help with your next design. E-mail us at info@andestech.com. Andes Technology USA Corporation 2375 Zanker Road, Suite 210, San Jose California 95131

ASolid Adopts AndesCore™ N9 for their AS2726 eMMC Controller to Deliver Competitive Market Advantage

ASolid Technology Co., Ltd, one of leading NAND flash controller providers based in Hsinchu, Taiwan, has adopted the **AndesCore™ N9** for their AS2726 eMMC chip. The Andes 32-bit CPU core enables the ASolid AS2726 eMMC chip to achieve a cost effectiveness, low power consumption flash controller solution; thus allowing ASolid a significant competitive advantage in the rapidly growing eMMC market.

"Our comprehensive solutions have enabled customers to realize enriched and stable performance enhancement in their products," said Andy Yeh, Senior Vice President, Research & Development of ASolid Technology. "For example, our AS2726 controller supports eMMC4.5, eMMC5.01 and eMMC5.1. Its high-performance asynchronous mode operation can reach up to 50MB/s and an even faster synchronous mode operation of 400MB/s. With its small footprint and low-power competitive advantage, the AS2726 provides an excellent reasonably price product. During our engagement, Andes exceeded our expectation in product and service. The core provides area and power savings with better performance compared to competitive CPU offerings performing the same operations. We achieved a technical advantage with Andes' 32-bit RISC CPU."



"Andes is honored to provide our N9 CPU core to ASolid and to be their partner," said Frankwell Lin, President of Andes Technology Corporation. "The N9 delivers high performance in a small gate count and on a low power budget. Andes will constantly provide high-quality customer service and precise technical support to maximum benefits for our customers."

About the eMMC Market

The eMMC is suitable for today's mobile devices such as smart phones, digital cameras, multi-media, wearable devices, and tablets. According to the Global Industry Analysts, "The global market for eMMC is expected to reach 2.1 billion units by 2020, driven by the rapid growth in mobile device sales and robust increase in data consumption on mobile devices."

Andes Technology Corp.

Founded in March 2005, **Andes Technology Corporation** headquartered in SiSoft Research Center, Hsinchu, Taiwan is a leading Taiwan CPU intellectual property (IP) supplier, with over 115 licensees in Taiwan, Japan, Korea, China, Europe, and USA that have shipped over 1.8 billion units. Its products range from the entry level **N7** and **E8, S8** and **N8** with 2- and 3-stage pipelines, to the high-end **N13** with 8-stage and longer pipelines. The mid-range **N9** has the highest customer shipping volume while the mid-range **N10, D10**, and high-end **N13** support Linux and floating-point coprocessor. Configurable and extensible Andes cores enable designers to create unique designs.

AndeSight™ IDE enable customers to efficiently develop, debug, tune and regress their software.

AndeSoft™ provides customers optimized fundamental software such as OS, drivers, standard C libraries, middleware, etc. for rapid application development. The company has sales offices throughout Asia and the U.S.

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