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Welcome to our December edition of Braemac Product News.

Braemac Energy Solar Christmas Special.

Braemac Energy delivers clean, green energy solutions to households, businesses and government looking to take a positive stand for the environment. We provide a range of affordable energy-saving options that harness

natural energy to generate solar power. Our solutions are backed by in-depth industry know-how and a complete professional service to seamlessly integrate solar power and bring immediate savings in energy to the environment.



Today solar energy is:

- Free once the equipment is installed.
- Renewable Energy from the sun.
- Applicable to remote areas that are not connected to the main electricity grid.
- Environmentally safe (ie it produces no greenhouse gases)
- Australia has heaps of sunshine!

Solar Power Installations are a great way to power your home or business while helping to reduce your impact on the environment. Now is the perfect time to invest in solar power with the Australian Government's \$8,000 rebate for homes and up to \$12,000 rebate for schools, churches and community groups. Contact Michael Dyson m.dyson@braemacenergy.com.au from Braemac Energy today and receive a discount on your next solar energy installation.

For further information. [Click Here](#)

High-current single-chip LEDs up to 2 A

So bright, so cool – even up to 175°C

Extremely low thermal resistance coupled with low cooling requirements makes the Diamond Dragon ideal for use in recessed lights. Thanks to their small size they can be used instead of conventional halogen lamps for unobtrusive lighting.



At the start of 2008 OSRAM Opto Semiconductors will be launching a white super-bright LED by the name of Diamond Dragon. This LED combines impressive brightness of 250 lm (at 1.4 A) with a very low specific thermal resistance of 2.5 K/W, all in a SMT package. The LEDs will cover the entire white range and will also be available in all other colors. They will therefore be suitable for both indoor and outdoor general lighting applications and also for the automotive sector in daytime running lights or rear fog lights.

The exceptionally low thermal resistance of $R_{th} = 2.5 \text{ K/W}$ in the SMT package means that the heat produced in the chip can be efficiently removed. The maximum junction temperature of 175°C makes the LED extremely robust and allows solutions where the LED cannot be ideally cooled. These properties enable the LED to be easily integrated for example in small spotlights, retrofit applications and recessed ceiling luminaires, where they can even replace small halogen lamps. The LED can withstand even high temperatures with no damage at all. The silicon lens can be handled using standard SMT processes and does not require any change of process.

The high-brightness single-chip LED is based on a 2 mm² chip manufactured in Thin-GaN technology with chip level coating. With its typical power rating the Diamond Dragon adds to the OSRAM LED portfolio in the 5 to 8 W range and forms the link between the established 1 to 3 W LEDs (Platinum Dragon) and the 10 W LEDs (OSTAR). It is compatible with the other Dragon footprints and can therefore be integrated in existing designs without modification. The LED produces its impressive brightness of 250 lm at a typical operating current of 1.4 A (max. 2 A) in continuous operation. The LED can achieve a lifetime of more than 50,000 hours.

For further information [Click Here](#).

Wavecom are pleased to announce the launch of a new and enhanced Wavecom Web site today!

Totally revamped, the Web site will make you travel through our product map (Wireless CPU® family, Open AT® software and Services) in a user-friendly way. A greatly enhanced Product Locator will help you to choose the right product for your new projects, or to easily find the order code for the products you already use.



You will make out how our Smart Wireless products can help you in your Smart Business across the Automotive, Control and Monitoring, Fixed Voice, Home and Security, Sales and Payment, Utility Metering, and Vehicle Remote Management markets.

Its improved interactivity will allow you to create a personal Developer profile to access technical documentation. This means that existing logins and passwords to access the Private area of the old Web site will no longer be valid, and you need to register individually in order to access the documentation and downloads area.

We trust that you will enjoy the new Web site and look forward to welcoming you on www.wavecom.com!

For further information [Click Here](#).

Renesas Technology Completes Design of CPU Core for Next-Generation Microcontrollers, and introduces details of 'RX Family'

– The new MCUs will be built on a 90-nm flash process and achieve the world's top-class performance and code efficiency among CISC devices –

New CPU RX Family



**Design of architecture has
been completed!**

Renesas Technology Corp. announced that it has completed the design of an innovative new CISC⁽¹⁾ (Complex Instruction Set Computer) CPU architecture that will deliver unmatched capabilities in code efficiency, processing performance, and power consumption for a future generation of Renesas' CISC microcontrollers (MCUs). Products based on the new architecture will be branded as the 'RX' family.

The first family utilizing the Renesas' eXtreme MCU core, RX is destined to bring excellent performance and versatility to many end systems in the coming years. When RX devices, built around 16-bit and 32-bit versions of the new CPU, become available, Renesas expects that they will accelerate the expansion of its MCU business and support the company's vision of a ubiquitous networked society.

Today's embedded systems involve more complex designs that require higher

performance, multiple functions, and the use of advanced technology. As a result, system complexity and program sizes increase, and MCUs must run faster and more efficiently in order to execute large application programs in real-time.

As the world's top MCU supplier(2), Renesas has a broad product portfolio of MCUs, including the M16C, H8S, R32C and H8SX families that address 16- and 32-bit markets. The strong global demand for these popular devices, coupled with forecasts for continued market growth, especially in the 32-bit market, has encouraged Renesas to invest the substantial R&D resources necessary to make the new architecture a reality.

Details of key characteristics of RX architecture

- Fast, high-performance CPU – The new architecture provides high-speed operation (200MHz) while at the same time processes more instructions per clock cycle: 1.25MIPS/MHz, as measured in the Dhrystone v2.1 benchmark.

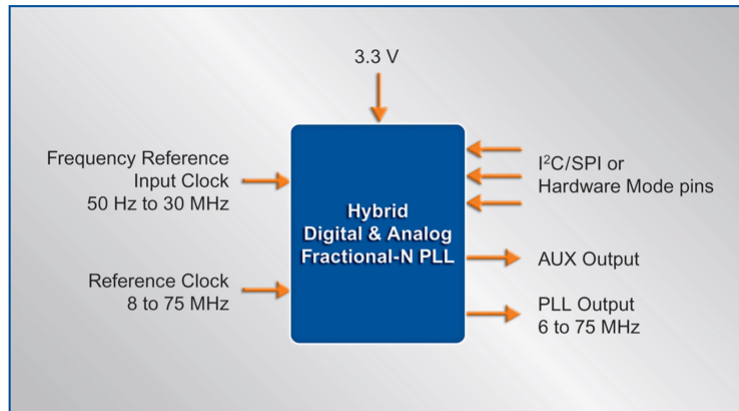
The new CPU is based on a Harvard Architecture, which provides separate address and data paths, allowing the execution of instructions and data access in single cycle. This single-cycle capability was also tested and verified using field-proven Renesas MCUs. To ensure the highest performance possible, Renesas has performed extensive design and testing work on the architecture. As a result, the new architecture is fully optimized with the efficient use of registers, instructions and address modes. Moreover, it has sixteen 32-bit general-purpose registers, which allow the CPU to process both data and addresses in all available registers.

- On-chip floating point unit - To enable highly sophisticated real-time control and multimedia applications, the RX CPU incorporates critical functions such as a multiply, divide, and multiply/accumulate. It also implements an IEEE754-compliant 32-bit single-precision floating-point processing unit (FPU) for handling multiple data types. The FPU reduces the calculation time for data processing tasks, the number of cycles needed for mathematical calculations, and the response time for any event occurrence, providing enhanced real-time performance.
- Highly efficient use of code – The RX CPU core has 4GB of address space and supports twelve types of address modes including Register Indirect with Index and Post Increment . The new CPU core supports byte-unit variable-length execution instructions that range from 1 to 9 bytes. It assigns 1- or 2-byte instructions to the most frequently used functions. All these enhancements compile application code in smaller program memory space, reducing overall system cost. Renesas expects that the new core will be thirty percent more code efficient compared to existing Renesas devices.
- Low power consumption – The newly developed 90-nm process that will be used to build the MCU with the RX architecture is a low-power, low-current-leakage technology. The improvements in logic and circuit designs help the new architecture to achieve 0.03mA/MHz or less power consumption at active mode when the CPU is running at full speed.
- Compatibility and scalability – To provide customers with seamless upgrade paths for higher performance MCUs or other compatible devices, Renesas plans to offer a complete suite of development tools for all devices with the RX architecture. The new toolchain is expected to simplify the migration of system designs and application code, so customers will need less time to complete new product development. The new toolchain including a C compiler will ensure the reuse of code, protecting the customers' investments made in the H8 and M16C families.

For more information about the new CISC architecture, [Click Here](#)

Cirrus Logic Clocking IC Family Provides Best-in-Category Jitter Performance

NEW YORK -- Leveraging its experience and innovations in high-precision mixed-signal audio IC solutions, Cirrus Logic Inc. (Nasdaq: CRUS) is making a strong entry into the clocking IC market with the introduction of the CS2XXX family of products. Focusing on audio applications such as A/V receivers, mixing consoles, multitrack recorders, digital recorders and set-top boxes, these new ICs, which include the CS2000, CS2100, CS2200 and CS2300, give manufacturers a superior solution for managing the complicated task of ensuring clean clocks within audio system designs.



CS2000

Precise clocking solutions are essential in electronics applications because they are used to synchronize the components used in professional and consumer audio equipment and directly affect audio quality. They are typically passive or active semiconductor components in an electrical circuit that provide a timing pulse for other components within that system. Currently, many applications require multiple clocking components to manage a variety of incoming audio signals. Comparatively, the CS2000 is unique because it offers both a clock generator feature and clock cleanup in a single IC. This integration reduces the number of components and board space required in audio systems. The ICs' ability to significantly reduce jitter (noise) compared to current industry solutions makes them ideal for the pro audio and high-end consumer market, as well as mainstream consumer audio/video applications.

"Cirrus Logic's experience in mixed-signal ICs fosters a deep understanding of the technical requirements, form factor, feature set and costs to compete and win in this market," said Mark Sherwood, principal associate and founder of market research firm Consulting Services and Associates. "The new clocking family is a strong market entrant, offering a very low noise A/VR clock source that allows for expansion. The flexible architecture provides for a good range of granularity in generated frequencies and the overall loop provides for very good stability and low noise, making it a great solution for audio, video and consumer applications."

The CS2XXX family is based on a hybrid analog/digital design. A Delta-Sigma Fractional-N Analog PLL Frequency Synthesizer is used to generate a low-jitter output clock relative to a reference clock. A Digital PLL can then be used to generate the multiplication factor for the analog PLL.

Key features include:

- 8 to 75MHz reference frequency
- 6 to 75MHz output frequency
- 50Hz to 30MHz input sync clock
- Single 3.3V supply
- Typical 75 ps RMS period jitter
- Maximum ± 0.5 PPM in high-resolution mode
- Jitter reduction/multiplier mode
- 50Hz to 30 MHz input sync clock
- 1Hz jitter rejection corner frequency

The CS2XXX family includes the following:

- CS2000: The CS2000 features both frequency synthesis/clock generation from a stable reference clock, as well as generation of a low-jitter clock relative to an external noisy synchronization clock, at frequencies as low as 50Hz.
 - CS2100: The CS2100 features clock multiplication and jitter reduction and is a subset of the CS2000.
 - CS2200: The CS2200 offers clock generation capability and is a subset of the CS2000.
 - CS2300: The CS2300 uses an internal LCO instead of an external crystal or reference clock for performing clocking multiplication and jitter reduction.
- Each family has various modes of control:
- I²C/SPI Control port for full parameter control
 - Hardware mode controlled by mode pins
 - Custom factory configured parts for high volume applications. These can be delivered in less than three weeks to customers from submission of the desired configuration.
 - Customer One-Time Programmable (OTP) for prototyping.

Cirrus Logic also provides a software Configuration Wizard in conjunction with development hardware which is ideal for development and prototyping of all the solutions. The development tools also provide a means of programming the OTP for customer prototyping.

For further information. [Click here.](#)

Contact Us

For further information, product data sheets and pricing, please contact your local Braemac sales representative. or email info@braemac.com.au

Braemac Pty Ltd
1/59-61 Burrows Road
Alexandria NSW 2015
Tel: 61 2 9550 6600
Fax: 61 2 9550 6377

www.braemac.com.au
info@braemac.com.au

About Braemac

Braemac is Australia's largest electronic component distributor with offices throughout Australia, New Zealand, USA, Singapore, Hong Kong and the UK. Our product offer includes some of the world's most prestigious suppliers including Atmel, Altera, Hitachi (Renesas), STMicroelectronics, Cirrus Logic, Marvell and Wavecom which allows our customers to choose from a wide selection of quality, well recognised components.



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