



Welcome

Lots has been happening behind the scenes at Bluewater Systems over the past few months. In our continuous search to serve our worldwide clients better, we have implemented a new business structure with our product sales sitting under a new company, DesignARM. There have been several staff changes related to this, and in the meantime founder Simon Glass will be acting CEO. Our team is working hard in the background to refresh our branding and communications for 2010.



Simon Glass

We wish all our customers a Merry Christmas and a Happy New Year.

ARM Roadshow

In a first for the region, ARM is organising a roadshow through Oceania. The event will be headed by Chris Shore, Training Manager at ARM headquarters in Cambridge, UK who regularly presents papers and workshops at engineering conferences.



Chris Shore, ARM

This presentation "Developing with ARM Microcontrollers – Past, Present & Future" will include material relevant to anyone either working with ARM-based platforms or considering them for future products.

Chris gives an historical and technical overview, with a look into the future of ARM microprocessor technology.

As well as a detailed technical description of current technology, Chris will touch on the wider ecosystem of expertise, support and products which has grown up around ARM in the last 20 years as well as looking forward to where ARM's products will feature strongly in the future.

The dates are:

- Wed 24 March Sydney
- Fri 26 March Adelaide
- Mon 30 March Melbourne
- Wed 31 March Christchurch

<http://www.bluewatersys.com/armevent.php>

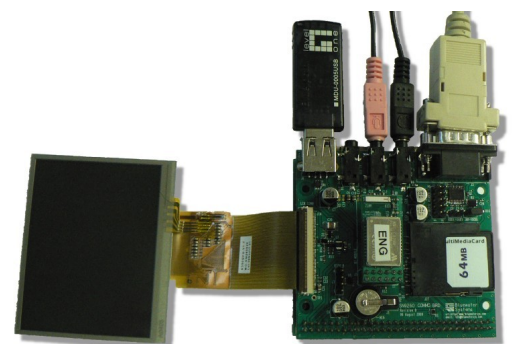
QuickStart Comms

Bluewater Systems has released a new expansion board to the popular Snapper 9260 QuickStart Kit. The new communications board provides easy access to a variety of standard peripherals (USB, Audio, Uart, SDIO), as well as providing an LCD solution. This board, available for US\$165 in single quantities, plugs easily onto the expansion header of the Snapper 9260 QuickStart kit, while still leaving the pins exposed for development purposes. The Snapper 9260 Linux BSP has been expanded to include full 24-bit support for the LCD, and touchscreen available via a separate 3.5" K350QVG LCD display.

Full schematics and technical details of the Communications expansion board are available, providing an excellent reference when developing custom carrier boards for Snapper 9260.

For further information, please visit

<http://www.bluewatersys.com/quickstart/9260communicationsboard.php>



The QuickStart Comms Expansion provides a range of useful communications expansions

DesignARM

Bluewater Systems's hardware design capabilities have gone from strength to strength over the past dozen years. We have built up a very large IP library and the capability to produce complex designs quickly and efficiently.

We released our first Snapper module, the Snapper 255, in 2005. This was a ground-breaking module in that it including a closely-coupled FPGA to support additional peripheral functions and processing. It also included removable storage, a first for system modules in the market.

With Snapper CL15 Bluewater moved into the lower cost ARM9 territory. Snapper 270 was one of the first modules to use NAND flash for storage. The latest module, Snapper 9260, is the smaller on the market at only 25mm wide, as well is being among the lowest priced.

As well as Snapper, Bluewater has developed Rig 200, a fully featured development and prototyping platform. This has proven its worth in a number of projects where complex peripheral interfacing is required but time does not allow a custom design. The Snapper 9260 QSK offers Linux development for US\$199.

Finally there is the DDS, a solid state telecoms data storage product now in use in ten countries around the world.

For some years Bluewater has been riding two horses, one consulting and the other product sales. Considerable effort has gone into the product side to ensure that manufacturing quality is the best it can be. Our ERP system and associated automation has significantly reduced the time and challenge for manufacturing and prototyping products.

During this year we introduced a new web site for our products: www.designarm.com. The site has a different focus from Bluewater's main site, aimed at showing people information about our products rather than our design skills.

We have therefore decided to create a new company, DesignARM Limited, to focus on product sales. This company is charged with ensuring that our products reach the widest possible audience around the world, and that we continue to innovate

DesignARM will initially have a small technical staff of two, focussing on operations and software support. The company maintains strong relations with Bluewater and shares



designARM

office space and finance / admin staff.

DesignARM has the right to use the Bluewater brand name on some products.

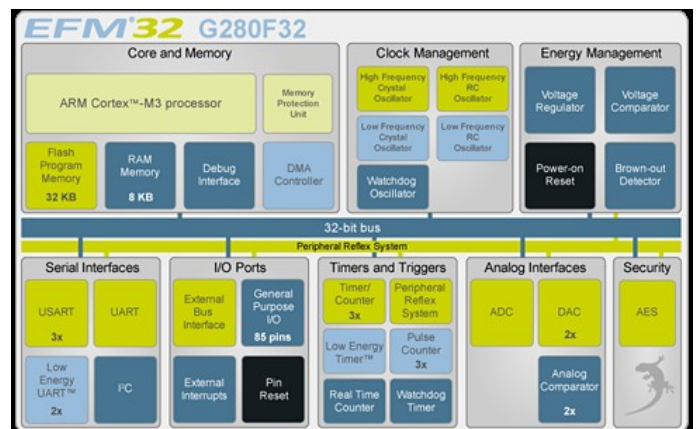
DesignARM has a number of new products appearing in the next 6 months, including the just-announced QSK Communications Expansion.

We at Bluewater wish DesignARM the best of luck in its new endeavours.

Low Power Cortex

System power consumption is often of huge concern to embedded systems developers. ARM has a long history of providing excellent solutions to these power-sensitive markets.

Two companies have recently extended their product range even further into the low power market, providing all the functionality that users of the ARM family are used to, such as 32-bit access and excellent code density, whilst reducing the power consumption even further.



EnergyMicro Block Diagram

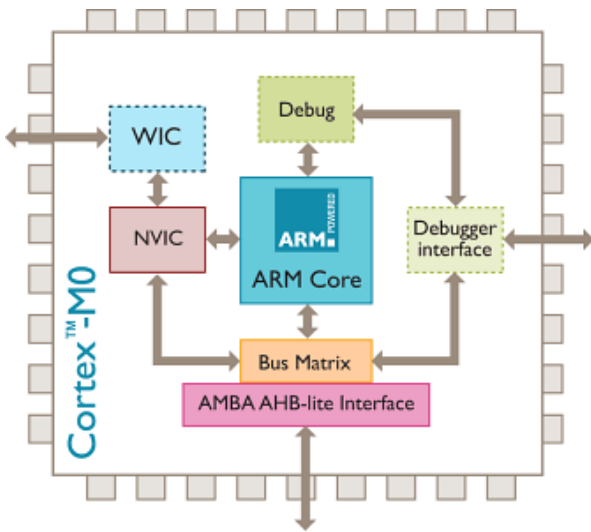
EnergyMicro, a new Cortex-M3 manufacturer, has recently announced its new range of *Gecko* Cortex-M3s. These are designed to be “the most energy friendly peripherals available for battery operated applications”.

These processors offer exceptional power consumption figures of 180uA/MHz when executing from flash, with as little as 20nA in deep sleep mode, and a 2us start-up time. These features make it ideal for situations where power consumption is at a premium, but high capabilities are still a requirement.

Development kits for these controllers are available now from DigiKey, with general availability of them coming in February / March

of 2010. For further information, visit the Energy Micro website.

<http://www.energymicro.com/>



Cortex-M0 Block Diagram

NXP Semiconductors has an existing fairly high-end Cortex-M3 range with 9 parts so far with pin counts ranging from 80 to 100 and a maximum clock speed of 100MHz.

NXP has also announced its new Cortex-M0 range, the LPC11xx. Available at just \$0.65 in 10,000 pricing, these microcontrollers offer exceptional value with a good feature set.

The Cortex-M0 is ARM's smallest, lowest power, and most energy-efficient processor. It consumes as little as 85uW/MHz. For further information, visit the NXP website.

<http://www.standardics.nxp.com/products/lpc1000/>

We mentioned the Cortex-M3 market leader, **Luminary Micro** (now part of TI) in our last newsletter.

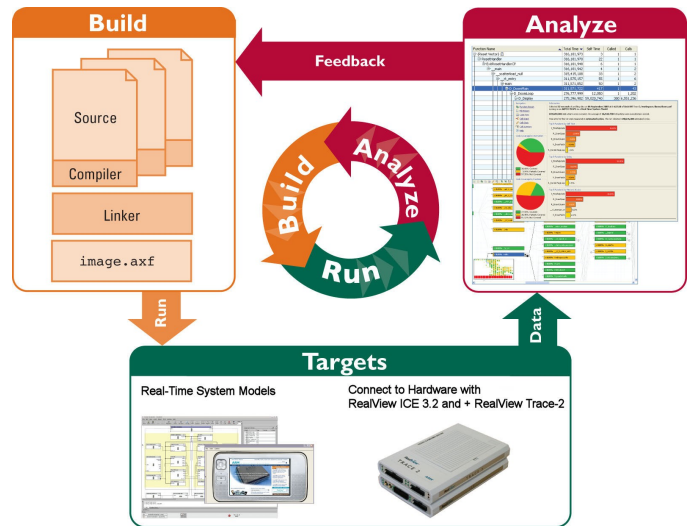
You can also see Cortex-M3 parts at **STMicroelectronics**. The STM32F range includes parts ranging from 16KB of flash and 36 pins to 0.5MB of flash and 144 pins.

<http://www.st.com/mcu/inchtml-pages-stm32.html>

ARM Profiler

ARM released its new profiler tool some time ago as part of RealView Development Suite 4.0 (RVDS). Few are aware of its capabilities so we thought we would highlight this for you.

When aiming to increase performance, programmers often have only a vague idea of where the bottlenecks lie. Software timing is a



The compiler uses profile data to improve code generation

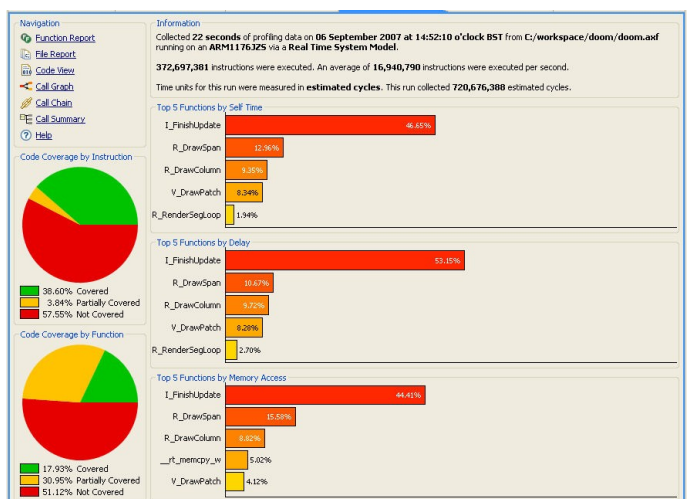
useful technique but it has limitations: it affects the run time, it changes the cache performance and it has limited resolution. Some engineers resort to using a scope attached to the board to get a feel for where the time is going.

Fundamentally the ARM Profiler allows you to benchmark your real system and pinpoint bottlenecks. Using the RealView Trace 2 unit, it can do this non-intrusively and on fully optimised code. You can also run the profiler on a simulator if you are wanting to optimise an algorithm for a particular ARM core.

For highly-optimised media-processing and DSP algorithms, it is useful to know how many cycles each instruction is taking, and this information is available also.

Many other features are supported including code coverage (complete with call graphing), stepping backwards and forwards through the instruction trace, linked assembly and source view and long term profiling limited only by disk space. The latter is very useful for narrowing down parts of the system which are contributing most to execution time and battery drain.

<http://www.arm.com/products/DevTools/RVP.html>




Advisory Board

Earlier in the year Bluewater Systems appointed an advisory board to provide advice and assist with strategic planning and governance initiatives.

The Advisory Board has now met 5 times this year and has cemented its role under the leadership of Chairman John Barr.

Members of the Advisory Board are:

 John Barr (chair)	Business Advisor, Past GM of Sunbeam Victa and CEO of NZ Insulators, Branch Chairman of Institute of Directors and member of NZTE's Beachheads Programme
Linda Smith	Ex Motorola Florida Pager Division head of marketing, now Tait Group Marketing Mgr
 Andrew Plimmer	CEO of HIT Lab NZ Ltd, Previously CEO of BayCity Group and GM of Avnet Aus / NZ. Chairman Electronics South.
 Patrick Rottiers	Advisor for NZ at Flanders Investment & Trade, Snr. Lecturer at various mgmt schools around the world, tech. commercialisation expert

Staff Movements

As part of recent restructuring, Bluewater Systems has lost three staff. Sarosh Dubash, CEO and Sales Director for the past three years, has moved to a new sales role with DesignARM for its initial start-up period. Theuns Verwoeld, a Senior Software Engineer and Amanda Gardner our Marketing Co-ordinator have also left the company.

We thank Sarosh, Theuns and Amanda for the contribution they have made to Bluewater and wish them well in their careers.

Bluewater System's founder, Simon Glass, has again taken on the role of acting CEO in the interim. You can contact Simon at sglass@bluewatersys.com if you have any comments or questions.

Case Studies

We very seldom take the opportunity of writing about our successes! This year we have made a special effort to do this and with the assistance of some helpful customers we have put together several case studies. These describe how Bluewater Systems was able to apply its technology and expertise to solve particular problems. You will find the information here:

<http://www.bluewatersys.com/success.php>

9260 Application Notes

If you are using our Snapper 9260 module, take a look at our application notes:

- 9260 Linux Camera – how to connect our 3Mpixel camera to the module
- 9260 Smart Display – how to connect a smart LCD display
- 9260 SD Connection – how to connect an SD card
- 9260 Boot speed – reducing boot speed from 11s to 6s
- 9260 Bluetooth Module – how to connect and use a Bluetooth module

<http://www.bluewatersys.com/quickstart/>

Forum

We have a very active forum where Snapper users can ask questions, exchange information and keep up with current Snapper news. You will find it here:

<http://www.bluewatersys.com/forum/>

Bluewater Systems Ltd
Unit 5, Amuri Park
404 Barbadoes St
PO Box 13889
Christchurch 8013
New Zealand



**Bluewater
Systems**

ARM Technology Solution Centre

Bluewater Systems Europe Ltd
Calverley House
55 Calverley Road
Tunbridge Wells
Kent TN1 2TU
United Kingdom

Ph +64 3 377 9127
Aust. 1800 148 751
USA 1800 261 2934
Fax +53 3 377 9135
sales@bluewatersys.com

www.bluewatersys.com

© 2009 Bluewater Systems Ltd

Ph +44 1892 704 066
Fax +44 1892 704 001
europe@bluewatersys.com