

Macro News for Micros

Product Line: Microcontrollers

Q2 '09 NXP Marketing Communications
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Volume 1, Issue 2

Q2 '09 Market/Business Overview

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...The positive news is that Q2 is showing signs of recovery...

Q1' 09 has shown continued decrease sequentially for both the semiconductor and MCU market. The positive news is that Q2 is showing signs of recovery and customer and market feedback from Asia is optimistic about Q2. For this quarter's newsletter, I'd like to share the essence of an article in January's Electronic News on the semiconductor industry. Let's keep the right perspective among the doom and gloom and have confidence in our ability to survive and thrive this market downturn!

...The semiconductor industry has a rich tradition of managing its way through dramatic and unforgiving cycles, ranging from years of extraordinary growth to steep declines. After five unprecedented years of continuous growth, the industry is now facing a downturn that is stunning even to industry veterans. In order to manage their way through the current downturn, companies must study the industry leaders and observe what they generally do during down cycles. Here are a few suggestions:

- A slowing industry growth is forcing companies to focus on an appropriate cost structure. That means companies that have chosen a fabless model have made the right decision.
- Success will increasingly require collaboration and integration of supply chain partners like designers, EDA and IP vendors, foundries along with assembly and test suppliers.
- Now is an ideal time for the industry to consolidate. But consolidation has yet to happen, and there does not appear to be much of an appetite for acquisitions.
- Successful companies have also developed their own process expertise. This allows them to control technology while alleviating the need for ownership. Having the talent to work more intimately with foundry partners is important.
- Develop software expertise. Companies focusing on methodology and productivity have a time-to-market advantage. This software expertise allows companies to provide solutions for customers.
- Product diversification helps companies protect margins. This is, of course, difficult for small companies, but it can reduce segment and customer dependence. This can be very important when one sector declines.
- **Do not sacrifice R&D spending during the downturn. R&D dollars should remain the same or increase as a percentage of sales for those programs that are part of a company's long-term roadmap. This is a good time to shut down projects that are not strategic, but do not abandon projects that are strategic to your company's future.**

Q2 '09 Market/Business Overview *(con't from Page 1)*

Please note the last suggestion on R&D...and NXP is doing just that! The proof is our recent license of the new ARM Cortex™-M0 and demonstration of the first fully functional silicon of LPC1100 at Embedded Systems Silicon Valley. The market and customers have shown great interests in this new core and its tremendous potential of a better solution for 8bit/16bit MCU design. We're very excited about the new opportunities and leading customer engagement this new core has offered us. In addition to promoting this new family and roadmap to customers, please also prepare for the upcoming April MCU campaign which will showcase our overall ARM portfolio strengths and breadth including our new training resource, LPCZone.

Q2 is going to be an exciting quarter for MCU, please drive for better sales performance (meeting your forecast) and more new design-in opportunities!

Jennifer Zhao
Director of Marketing

HOT News

Looking for more 32-bit MCU Options? Start here. And with that message, the MCU Campaign is set to launch on April 20th. The campaign will focus on four key application areas: USB, Ethernet, LCD, and Motor Control. Each area will showcase our ARM portfolio breadth while displaying its strength with its industry-leading products. The components of the campaign will consist of a campaign-specific landing page, free sample offer, free tools, printed material, and much more! This campaign is truly a world-wide effort as the campaign will be supported with additional activities from our regional sales and distribution teams.

But that's not all....After the initial launch, we'll continue the campaign push with "mini" launches on specific products to continue to pique the interest level of our customers and help to make NXP microcontrollers a "top of mind" supplier in their eyes.

Make sure to check out http://www.nxp.com/campaigns/experience_MCUoptions/ on April 20th and Start Here for more 32-bit MCU options!

Press Announcements

Press Releases :

- Cortex-M0 First Licensee (Embedded World)
- Cortex-M0 First Silicon (ESC SV)

PR Coverage:

- Embedded World Cortex-M0 first licensee release generated more than 100 coverage worldwide. Coverage highlights from EW included:
 - Webcast from Elektronik Praxis:(scroll down until NXP, Geoff Lees on the right box)
<http://www.elektronikpraxis.vogel.de/index.cfm?pid=8107>
 - Electronics Weekly:
<http://www.electronicweekly.com/Articles/2009/02/23/45512/arm-launches-tiny-12k-gate-processor.htm>
 - EDN Europe: <http://www.edn-europe.com/smallestlowestpowerarmcoreever+article+2828+Europe.html>

"...The company's experience with the M3 core convinced NXP there was scope to move to much lower-power product regime..." Geoff Lees, EDN Europe during Embedded World

PR Coverage *(con't from Page 2)*

- Cortex-M0 First Silicon: <http://www.newelectronics.co.uk/article/17665/Hand-holding-the-new-technology.aspx>
- Embedded Systems Silicon Valley Cortex-M0 First Silicon release press coverage:
 - IDC
 - EDN
 - Extreme Tech
 - Chip Design
 - Electronic Products
 - Electronic Design
 - Strategy Sanity
 - Portable Design
 - IMS
 - Circuit Cellar
 - Chip Design
 - ESC Foreign Press Event

"...anyone moving to 32-bit will need 'more support than usual' [and] customers won't want difficulties..." Geoff Lees, NewElectronics

Development Boards

The following new microcontroller development tools are now available in eTools (<http://nwww.etools.nxp.com:8080/>):

OM11021 – Hitex LPC3250 Stick



- LPC-Stick with LPC3250 microcontroller in BGA289
 - ARM926EJS ® core up to 266 MHz
 - Internal 256kByteSRAM
 - External 32Mbyte SDRAM and 128MByte NAND FLASH
 - Ethernet MAC with MII/RMII interface
 - USB 2.0 full speed host/OTG
 - USB 2.0 full speed device and UART, SPI, I²C
 - LCD controller
 - VFP, Cache, MMU, timers, I/Os, PWM, ADC and a lot of other peripherals
 - extension connector for Samtec micro edge connector MEC6-140-02-L-D-RA1 and MEC6-110-02-L-D-RA1
- JTAG debugging over USB connector
- UART5 communication to the application over USB connector
- Graphical LPC-StickView GUI controlling the stick application
- HiTOP IDE and debugger for flash programming and debugging
- Unlimited TASKING C-Compiler for ARM

- Stick application (demo) in source code (except USB-host portion) includes
 - USB host application
 - USB twin HID application with data transmission
 - Vectored Floating Point controller
 - Interface and measurement part (logic analyzer and ADC)
 - I/Os and RTC
 - SPI, I²C communication
 - UART communication
 - MD5 application and external memory access
 - Ethernet low-level driver and configurable web server application
 - LCD controller demo

More information can be found at: <http://www.hitex.com/index.php?id=lpc3250-stick-details>

OM11022 – Hitex LPC2478 Stick



- LPC-Stick with LPC2478 microcontroller in BGA
 - ARM7TDMI ® core up to 72 MHz @ 3,3V
 - 512kByte flash and 96kByte SRAM
 - Ethernet MAC with MII/RMII interface
 - USB 2.0 full speed host/OTG
 - USB 2.0 full speed device and UART, SPI, I²C, CAN
 - LCD controller
 - timers, I/Os, PWM, ADC and a lot of other peripherals
 - extension connector for Samtec micro edge connector MEC6-140-02-L-D-RA1 and MEC6-110-02-L-D-RA1
- JTAG debugging over USB connector
- UART communication to the application over USB connector
- Graphical LPC-StickView GUI controlling the stick application
- HiTOP IDE and debugger for flash programming and debugging
- Unlimited TASKING C-Compiler for ARM
- Stick application (demo) in source code (except USB-host portion) includes
 - USB host application
 - USB twin HID application with data transmission
 - Interface and measurement part (logic analyzer and ADC)
 - I/Os and RTC
 - SPI, I²C communication
 - UART communication
 - CAN communication
 - Ethernet low-level driver and configurable web server application
 - LCD controller demo

More information can be found at: <http://www.hitex.com/index.php?id=lpc2478-stick-details0>

OM11023 – Hitex LCD COM++ Extension Board for LPC-Stick (for OM11021 and OM11022 Hitex LPC3250 and LPC2478 Sticks)



The communication extension board provides a set of communication features and pinouts as well as an external power connector.

- 320*240 pin 24 bit LCD display with background light
- Ethernet Phy and connector
- USB Host connector
- USB Device/OTG connector
- CAN and UART connector
- Poti
- Buttons

More information can be found at: http://www.ehitex.de/p_info.php?products_id=374

OM11024 – EA LPC313x Eval Board



Embedded Artists' LPC3131 OEM Board (mounted on the LPC31xx Base Board) lets you get up-and-running quickly with NXP's ARM926EJ-S LPC3xxx microcontroller series in general and with LPC3131 in particular. The OEM board has SODIMM format and is only 66x48 mm and is perfect for running Linux with large on-board RAM and FLASH. All processor signals are available on the 200 pos connector for easy expansion.

The board can be used in OEM applications, as well as for education purposes, experiment, and prototype projects. NXP will provide a Linux distribution for the board based on Linux 2.6 and using APEX for booting. The distribution is provided "as-is" and without any support from Embedded Artists.

More information can be found at:

http://www.embeddedartists.com/products/uclinux/oem_lpc3131_bundle.php?PHPSESSID=2p6gfue9r2s8fgtkq3ckk0ldl4

Product Updates

LPC9xx1 – UPDATE

<http://www.standardics.nxp.com/products/lpc900/>

The LPC9xx1 is an improved version of our existing LPC9xx 8-bit microcontroller series incorporating new features such as robust Brown Out Detection (BOD), clock switching on the fly and analog temperature sensor. The LPC9xx1 represents a quality improvement completely addressing all known issues with the existing LPC9xx product series and also including performance enhancements such as addition of a clock doubler option to the internal RC oscillator, improved accuracy of the watchdog oscillator, overall lower power consumption and faster A/D converter.

These MCUs are pin-to-pin compatible with the LPC9xx devices housed in the same packages. (please see below overview)

New products	Old products
P89LPC922A1FN	P89LPC922FN
P89LPC922A1FDH	P89LPC922FDH
P89LPC9201FDH	P89LPC920FDH
P89LPC9211FDH	P89LPC921FDH
P89LPC9241FDH	P89LPC924FDH
P89LPC9251FDH	P89LPC925FDH
P89LPC9301FDH	P89LPC930FDH
P89LPC931A1FDH	P89LPC931FDH
P89LPC9331FDH	P89LPC933FDH
P89LPC9341FDH	P89LPC934FDH
P89LPC9402FBD	P89LPC9401FBD
P89LPC9351FA	P89LPC935FA
P89LPC9351FDH	P89LPC935FDH
P89LPC9321FA	P89LPC932A1FA
P89LPC9321FDH	P89LPC932A1FDH
P89LPC9321FN	P89LPC932A1FN

All products have reached status RFS, samples are available via the e-sample store and through third-party suppliers, we offer a range of development and evaluation tools for these microcontrollers. For the most current listing, please visit www.nxp.com/microcontrollers

LPC215x – UPDATE

<http://www.standardics.nxp.com/products/lpc2000/all/~LPC2158/#LPC2158>

The LPC2158 and LPC2157 have now both reached RFS status. These parts are the LPC2148 and LPC2138 with an LCD Segment Driver in a single package, ideal for customers who need a small segment display on their application. For 100 Kpcs opportunities, we can also release versions based on other LPC214x or LPC213x series members.

LPC2300/LPC2400 qualified to +125C - UPDATE

<http://www.standardics.nxp.com/products/lpc2000/lpc23xx/>

<http://www.standardics.nxp.com/products/lpc2000/lpc24xx/>

We have finished our qualification of the LPC2364 to +125C and it is now available for ordering as LPC2364HBD100. The datasheet will be posted on the Standard IC's website soon. Please note that this is an extended temperature qualification only and is not an Automotive AEC-Q100 qualification. If you require other LPC2300/2400 variations to be qualified to +125C, please contact your Regional Marketing Manager for details.

LPC2900 - UPDATE

The Fastest ARM968 MCU & the Fastest ARM MCU with Embedded Flash

<http://www.standardics.nxp.com/products/lpc2000/lpc29xx/>

At 125MHz, the LPC29xx family is the fastest ARM968 microcontrollers available on the market, targeting high speed printers/copiers, conveyer belt systems, fork trucks, industrial drives and HVAC systems. The LPC29xx family offers features such as USB Host/OTG/Device, 16KB EEPROM, up to 768KB Flash and up to 56KB SRAM, UARTs with RS485 and LIN support, Quadrature Encoder Interface, Motor Control PWMs, dual CAN interfaces, standard serial buses, plus a sophisticated PWM and two 3.3V and one 5V analog-to-digital converters (ADCs).

P/N	Flash (KaB)	SRAM (KB)	TCM(KB) I- /D-	EEPROM (KB)	CAN	LIN	UART	SPI	ADC	EMI	USB Device	USB OTG	USB Host	Package
LPC2939	768	56	32/32	16	2	2	4	3	3	Y	Y	Y	Y	LQFP208
LPC2930	0	56	32/32	16	2	2	4	3	3	Y	Y	Y	Y	LQFP208
LPC2929	768	56	32/32	16	2	2	4	3	3	Y	Y	Y	-	LQFP144
LPC2927	512	56	32/32	16	2	2	4	3	3	Y	Y	Y	-	LQFP144
LPC2925	512	40	16/16	16	2	2	4	3	2	-	Y	-	-	LQFP100
LPC2923	256	24	16/16	16	2	2	4	3	2	-	Y	-	-	LQFP100
LPC2921	128	24	16/16	16	2	2	4	3	2	-	Y	-	-	LQFP100
LPC2919/01	768	56	16/16	16	2	2	2	3	2	Y	-	-	-	LQFP144
LPC2917/01	512	56	16/16	16	2	2	2	3	2	Y	-	-	-	LQFP144

The LPC29xx family of microcontrollers use the same peripherals as the popular LPC2000 ARM7 family, making it an easy upgrade option for customers looking for additional performance in a low-cost embedded system. The ARM968 is designed for deeply embedded systems. Instead of Caches as is the case in the ARM926, the ARM968 incorporates Tightly Coupled Memories providing the deterministic response time required in an embedded system. Customers who are looking for ARM9 performance and do not need to run Linux or WinCE should strongly consider the LPC29xx family as an alternative to the LPC32x0.

Both the Hitex LPC2929 & LPC2939 boards will be available by end of April. Hitex is also providing a motor control board that interfaces with LPC29x9 boards simplifying the development of sophisticated motor control applications.

The LPC29xx family has reached CQS and will be released to production in July, 2009.

LPC1700 - UPDATE

<http://www.standardics.nxp.com/products/lpc1000/lpc17xx/>

Validation of the production silicon is on-going without any issues. CQS is scheduled for the end of May and RFS is scheduled for July. We are on track for delivering the engineering samples for our Push Program at the end of April.

There is an LPC1700 Frequently Asked Questions (FAQ) now available on the Standard IC's website. The FAQ includes 25 Questions/Answers and will be updated as more questions arise. <http://www.standardics.nxp.com/support/faq/microcontrollers/>

LPC32x0 - UPDATE***The ARM9 Applications Processor***

<http://www.standardics.nxp.com/products/lpc3000/lpc32x0/>

We have been having great success with LPC32x0 family. The family is being designed in many segments: Consumers, Industrial, Medical, Security, Automotive and Financial. Application examples: PC Monitors, Human Machine Interface, Telematics & Car Navigation, Control, Terminals, Medical Monitors, PDAs and Communication Routers.

One of our lead customers is going to ramp up in June and be in full production in August for a total of 300ku in 2H09.

Embedded Artist is designing a development board for the LPC3250 and will be available 2H09. Hitex has delivered its low cost LPC3250 Sticks and they are currently available in eTools (OM11021). We have also added a VxWorks BSP (via WindRiver) and RTXC BSP (via Quadros), more application notes and training modules.

We are actively working on a new revision of the silicon (Rev 1) to fix the errata in the current silicon as indicated in the Errata sheet. Samples of the new silicon are expected by July, 2009 and production release by September, 2009 (Production Parts available in Jan, 2010).

LPC313x – UPDATE***The Lowest Cost ARM9 with HS USB (\$2.8 in 10ku)***

<http://www.standardics.nxp.com/products/lpc3000/lpc3130.lpc3131/>

The LPC313x is now in production. As with the LPC32x0, we are having a huge success with this family in the same market segments as outlined in the LPC32x0 update. Application examples: PC Gaming, Telematics, Communications, Blood Analyzers, Digital Audio, PDA, PDAs, Telecom, security and cordless phones

We have multiple customers gearing up for full production in 2H09 for a total of 200ku a great start for a part that started to sample in Oct, 2008.

Embedded Artist development board is currently available in eTools (OM11024) and they are working on an updated version that will include an Ethernet chip to simplify Linux development. An updated CDL (Common Driver Library) is already posted on the website which includes an OS independent USB Device Stack and Mass Storage Class (MSC) example. The CDL is being updated to include other classes like HID, CDC, Audio, and DFU. USB will also be supported under Linux and Segger's emOS RTOS.

Linux BSP will be phased in with the first release slated for 2nd half of April. Micrium is finalizing its uC/OS-II BSP and USB Device Stack. Segger is also finalizing its emOS BSP, GUI, USB Device Stack and File System.

LPC315x - **NEW**

URL Coming soon!

In 2Q'09, NXP will expand its lowest cost ARM9 MCU Series by introducing the LPC315x family. The LPC315x series consists of four devices: LPC3151, LPC3152, LPC3153 and LPC3154. The LPC3151 has a secure One-Time-Programmable (OTP) memory. The LPC3152 adds a Stereo Audio CODEC with Class AB Headphone Amplifier, Power Supply Unit (PSU) and Li-Ion charger to LPC3151 allowing designers to maximize power savings without sacrificing performance or cost. The LPC3153/4 adds a 128-bit AES Decryption Engine to the LPC3151/2, respectively, providing a mechanism to boot securely from NAND Flash, SPI-Flash, SD/MMC, eMMC/eSD and Managed NAND devices.

LPC1100 (Cortex-M0) - **NEW**

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

We recently introduced the first working silicon of the LPC1100 family. The LPC1100 has two main value propositions. First, the LPC1100 offers industry leading energy efficiency enabling it to compete in low power applications. Second, due to its simplicity and cost effectiveness, the LPC1100 offers 32-bit performance in an 8/16-bit footprint enabling it to compete with existing 8/16-bit microcontrollers.

Based on the Cortex-M0 core, the LPC1100 includes a 10-bit ADC, timers, serial interfaces, and memory. It operates at speeds up to 50MHz and includes an integrated Power Management Unit (PMU) to minimize power consumption during sleep, deep-sleep, and deep power down modes and an integrated Clock Generation Unit (CGU) incorporating a DLL and offering system clock generation from main crystal oscillator, internal RC oscillator, or low power watchdog oscillator. The LPC1100 leaflet describes the features in more detail.

The LPC1100 will be available to the broad market in the beginning of 2010. NXP is currently working with lead customers on key design-in projects. The LPC1100 will not be available to the broad market until 2010 in order to ensure that a complete ecosystem (i.e. low level drivers, middleware, demo boards, downloadable code, etc) is in place to fully support it.

Pricing for the LPC1100 will be announced later this year.

Training

Be sure to check out the training modules on [LPC products](#). We have video training modules on LPC2900, LPC93x1, LPC32x0, LPC2300/2400, BlueStreak and NTRU Encryption. You can watch the training modules streaming from the internet, download to your computer or video iPod or just view (no audio) the presentation in .pdf format.

Coming soon! The **LPC313x & LPC1700** training modules.



Application Notes

Flash Magic

Version 4.6 is now available with the Ethernet bootloader included.

Differentiated Features of the LPC1700

The NXP LPC1700 series of ARM Cortex-M3 microcontrollers has several new features that differ from the popular LPC2000 ARM7 MCUs and some of which are unique to NXP's implementation of the M3 core. The Tech Note will detail those unique features to help the user identify opportunities to utilize the tremendous performance of the LPC1700 family.

<http://www.standardics.nxp.com/support/documents/microcontrollers/pdf/tn09001.pdf>

All other updated Tech notes, Application Notes etc can be found at:

<http://www.standardics.nxp.com/support/documents/microcontrollers/?sort=date>

Literature Updates

PDFs of all MCU literature can be found at:

<http://www.standardics.nxp.com/literature/microcontrollers/>

- LPC1700 - **Update** – (9397-750-16676)
- MCU Linecard – **March Update** – (9397-750-16669)
- LPC9402 – **NEW** - (9397-750-16684)
- LPC93x1 – **NEW** - (9397-750-16683)
- LPC92x1 – **NEW** - (9397-750-16682)
- LPC1100 – **NEW** - (9397-750-16716)

Tradeshows

IIC China (Shenzhen, China)

IIC-China continues to provide exhibiting technology companies with direct access to the world's largest IC market. With 370+ exhibitors, it ensures that companies can meet and network with decision-makers, engaging them in profitable dialog.

For MCU participation specific, please refer to attached pictures of demo tables, for exhibits of:

- uCdragon LPC2478 demo board, with color LCD display
- ZLG SmartARM2400, Smart ARM3250, MP3 board with LPC23xx

In addition, Shawn Zhang and Allen Lv gave a speech at the IIC MCU/Industry control forum in Shenzhen and Shanghai on Designing Deeply Embedded ARM9. More than 100 people attended the MCU seminar. The related audience information was sent to marketing/sales for follow up and provided to e-marketing for online programs afterwards when available.



NXP Booth at IIC

Embedded World (Nuremburg, Germany)

With over 15,000 attendees, the world's biggest exhibition for embedded technologies was a great success again.

For NXP in particular, there was an excellent turnout of customers resulting in enhancement of relationships and new business opportunities. This was the first event where the MCU Campaign message, Looking for more 32-bit MCU options, was used and the focus was on the 4 application areas of:

- The highest bandwidth Ethernet
- Unique low cost LCD integration
- The widest choice of USB options
- Motor control with performance to spare

Overall, a successful show where we were able to strengthen the NXP and MCU image in the market.

Embedded Systems Silicon Valley (San Jose, USA)

One of the industry's leading embedded systems events, ESC brings together the largest community of designers, technologists, business leaders, and suppliers all in one place.

For NXP, it was another successful event where we presented industry leading demonstrations and free sponsored sessions on our Cortex microcontroller portfolio.

The NXP demonstrations included a **world's first functional Cortex™-M0 based demonstration**, the fastest Cortex™-M3 based microcontroller on the market, and a wide variety of ARM9 and ARM7 based demonstrations. In our Tools Zone on the booth, a wide variety of our tool partners showcased various applications of NXP microcontrollers demonstrating our total ecosystem support. Our sponsored sessions were just as popular as our booth with "standing room only" during sessions centered around the new Cortex-M0 based microcontroller. Overall, another great show for NXP.

For more information on the show and to view a video of NXP at ESC, go to our post show [ESC website](#).



NXP Booth at EW



NXP Booth at ESC SV



Upcoming Events

MCU Campaign Launch	April 20
Embedded Processor Workshop (Tokyo)	April 24
ARM Seminar (Taipei)	May 7
NXP-ARM Event (Moscow)	May 20 - 22
Memorial Day (Holiday - US)	May 25
ARM Seminar (Shanghai)	June 8
ARM Seminar (Beijing)	June 10
ARM Seminar (Shenzhen)	June 12

APRIL 2009						
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