



With Imagination

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Latest in mobile technologies on show at MWC 2010



Imagination is showcasing the latest mobile technology demonstrations and the best new applications from leading user interface, games and navigation developers at MWC 2010 in Barcelona from February 15-18th.

Imagination will be showing its full range of graphics, video, display enhancement, demodulation, Wi-Fi and embedded processor IP for SoCs (Systems on Chips). Imagination will also be displaying a large number of OEM partner devices including many of the most iconic phones on the market today.

Now in Hall 1, Imagination's new look 100m² stand will showcase POWERVR graphics, video, and display, META processor and ENSIGMA communications technology. These uniquely low power and highly scalable technologies enable Imagination's partners to lead the market for low-power, high performance mobile devices.

Also at the show, Imagination will host the best content from developers in Imagination's 15,000 strong POWERVR Insider ecosystem in a dedicated Application Zone.

Digital Legends, Barcelona's international award-winning games studio, are sure to be a highlight of the show with the debut of Extreme Ball, a demo custom made for Imagination that shows the capabilities of POWERVR SGX. Extreme Ball will be featured on Imagination's stand running on two large HD screens.

Swedish software technology and design company TAT will be revealing their new demo for the OMAP 4 Blaze platform as well as an updated version of their RedDish UI running on Motorola Droid. OMAP 4 is the latest SoC from Texas Instruments and Imagination's stand will be the best place to see this stunning device put through its graphical paces.

Digital Aria, a developer of state of the art GUI framework technology, will be showing how graphics acceleration and advanced mobile platform technology provide operators and OEMs with the power to create rich-media user experiences. They will be showcasing their latest UI demos running on one of the latest smartphones.

Fishlabs, a leading developer of premium 3D mobile games based in Hamburg, will be demonstrating Rally Master Pro using OpenGL ES 2.0 shader graphics on the iPhone 3GS and Sony-Ericsson's Kurara and Kanna.

Smarter mobile phone navigation will be demonstrated by Kishonti and NAVTEQ. The NaviGenie 3D Mobile Navigation Framework from Kishonti Informatics, a runner-up in the 2009 NAVTEQ Global LBS Challenge – Europe, Middle East and Africa (EMEA) region – will be on display, showing how smart use of graphics and data handling can bring stunning navigation to phones.

Visioglobe will show an immersive 3D geographical and urban visualization engine, which makes it possible to navigate in real-time with an excellent image quality and fluidity, while retaining the possibility to add virtual objects or ads on-demand. Their latest product, VisioSki will show how POWERVR and OpenGL ES 2.0 can deliver graphics which are functional and beautiful.

Each will use technology from NAVTEQ, the

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leading global provider of digital map, traffic and location data for in-vehicle, portable, wireless and enterprise solutions.

Imagination is a Global Award Sponsor of the 2010 NAVTEQ Global LBS Challenge for the 'Most Innovative Use of Graphics' in each of the five regions: EMEA, North America, South America, India and Asia-Pacific. One overall winner in the category will be flown to the UK for two days of intensive support, training and fun with Imagination engineers – and the chance to be featured at future Imagination events worldwide. Imagination will participate in judging the final of the EMEA LBS Challenge on Sunday 14th February in Barcelona.



POWERVR FRC270 frame rate conversion IP core unveiled at CES 2010

The latest frame rate conversion IP core from Imagination, POWERVR FRC270, was demonstrated to customers and press at CES 2010. This unique solution, shown running in a real-time FPGA-based system, delivers exceptionally high quality image processing, with the industry's smallest silicon area for motion compensated frame rate conversion up to 240Hz.

POWERVR FRC IP cores enable highly intelligent up-sampling of up to HD resolution content from 24fps to 100/120fps up to 200/240fps, with excellent de-judder and motion de-blur characteristics.

POWERVR FRC270 is ideal for a wide range of markets including TV, set-top box (STB), Blu-ray players, mobile phones, and video conferencing.

Imagination's long association with the digital HDTV industry has enabled it to develop an unrivalled range of display enhancement technologies suitable for consumer TV and STB applications, and POWERVR FRC270 is the latest demonstration of its commitment to the mainstream TV market. With a broad portfolio of IP cores – including frame rate conversion, de-interlacers, skin tone and blue/black stretch engines and more – POWERVR display technologies have it covered. Indeed, an increasing



number of tier one OEMs and specialist TV/STB SoC designers are either already adopting or considering moving away from their in-house technologies to Imagination-based solutions.

With the explosion in 'YouTube-style' user generated video content, consumers have access to material from a wide array of sources, generated by a broad range of equipment that often delivers considerably less than film or broadcast quality source material. For example, mobile video from digital cameras and mobile phones is often shot at frame rates as low as 12-15 frames per second, which makes the video appear jerky. The FRC270 can significantly improve the quality of this low frame rate material by increasing the rate to 25-30 frames per second or more, delivering smooth motion from low frame rate source content.

New video decoder cores to support On2 VP6 video format

Imagination and On2 are working together to enable Imagination's video decoder cores to support decoding of On2 video formats, beginning with On2 VP6, which will be introduced into the POWERVR VXD family in early Q1 2010.

On2 is an industry leader in the compression and delivery of high-quality video over IP networks, with technologies that push the boundaries of video compression. Imagination will add On2 VP6 support to the already extensive range of codecs supported by its POWERVR video decode cores, enabling them to offer full support for all the video codecs used in Adobe Flash Player.

"We are very pleased that Imagination, a leader in video decode technologies in the netbook, MID and media player markets, will be supporting On2 VP6," says Matt Bryne, SVP Sales & Business Development at On2 Technologies. "Imagination's adoption of On2 VP6 decoding technology will help drive the delivery of VP6 decoding in hardware chips. Imagination has a reputation for high-quality video cores and we are confident they will deliver a high-quality solution for On2 VP6 at resolutions up to full 1080 HD."



New META AXD audio processor IP platform

META AXD is a full audio IP platform delivering a complete multi-standard and multi-stream audio solution for SoC designs.

It takes a new approach, applying multi-threaded processing to deliver industry leading performance in a shared memory, high-latency SoC environment. All audio processing in the SoC is offloaded to the META AXD core, freeing valuable host processor resources for improving the user experience and delivering value-added applications. The AXD family, which includes AXD230 and AXD270, supports the latest audio standards, including MP3, HE AAC, WMA and surround sound up to 7.1.

Imagination's multimedia credentials mean that it understands audio is not an island – it needs to be considered alongside all the other requirements in a multimedia SoC, including graphics and video. For an SoC to be competitive, offloading key processing-intensive functions such as audio from the CPU very efficiently and at the highest possible level of abstraction is crucial if the system is to be highly responsive in all conditions. META AXD is not just a next generation audio solution handling the most complex audio codecs and post-processing; it is also unique in using multi-threading to deliver that performance under all operating conditions.

A single META AXD core can support a wide range of audio codecs and post-processing effects, including all Blu-ray audio processing requirements when implemented in a suitable process such as 65LP. Due to AXD's unique hardware multi-threaded architecture and Imagination's long experience in high performance, low power consumption SOC solutions, META AXD also enables dedicated on-chip memories to be eliminated, further reducing silicon area and cost.

Imagination Technologies brings its PURE radio brand to the US

After achieving market leadership in Europe and Australia, PURE has its sights firmly set on the US.

At CES 2010, imagination revealed that internet-connected and FM radios from its PURE division will soon be available in the United States. PURE showcased the selection on their booth at CES.

PURE's line of sleek, intuitive and multifunctional internet radios offer instant access to tens of thousands of internet radio streams, podcasts and listen-again content from around the world, as well as the ability to wirelessly access personal music libraries from connected Macs and PCs.

With products such as Sensia, a revolutionary connected audio system with a 5.7" colour touchscreen, PURE enable consumers to experience all of their digital content from a single interface, including Web-based applications such as Facebook and Twitter. PURE sees an opportunity to drive a market

segment that does not have a clear leader, satisfying Americans' desire to be connected to their content whenever and however they choose.

Charles Bellfield, GM, PURE US says: "The US is a challenging but also high-reward market, and with our strong and growing product range, legacy of user experience-focused design and our extensive engineering and technical capabilities, we are extremely confident that our success in other parts of the world will translate well to the demanding US market."



POWERVR SGX545 announced

POWERVR SGX is already the standard for graphics in the latest generation of phones with over 40 models already shipping. Now Imagination has introduced SGX545, the first and only DirectX 10.1 capable embedded graphics IP core available for licensing.

SGX545 also delivers OpenGL ES 2.x and OpenGL 3.2 class-leading 3D graphics performance and supports OpenCL 1.0 full profile capability. SGX545 enables mobile and embedded applications to take maximum advantage of the capabilities offered by these GPU APIs for both 3D graphics and general purpose applications.

Says Tony King-Smith, VP Marketing, Imagination: "Combining our many years of experience in the embedded, mobile and PC-based DirectX graphics worlds, POWERVR SGX 545 takes the possibilities of hand-held graphics to a new level by delivering a full DirectX 10.1 and OpenGL 3.x feature set as well as delivering GPU powered OpenCL heterogeneous parallel processing capabilities for the mobile and embedded markets. This makes POWERVR SGX545 a compelling solution for application processor SoC designers targeting the next generation of netbook and MID mobile products demanding exceptional graphics capabilities."

The debut of POWERVR SGX545 reinforces the SGX family's outstanding scalability which ranges from ultra-small OpenGL ES 2.0 mobile cores through solutions for feature-rich mobile and HDTV platforms, to high-performance gaming and computing solutions. The SGX family supports a wide range of APIs including DirectX 9 and 10, OpenGL ES 2.x, OpenGL 3.x, OpenVG 1.x and OpenCL 1.x.

POWERVR SGX545 delivers real-world performance of 40 million polygons/sec and 1 Gpixels/sec fillrate at 200MHz, assuming a scene depth complexity of x2.5, and is capable of driving HD screens with ultra smooth high frame rate 3D graphics content.

Real-time Wi-Fi and ATSC capabilities on latest ENSIGMA UCCP310 communications IP platform

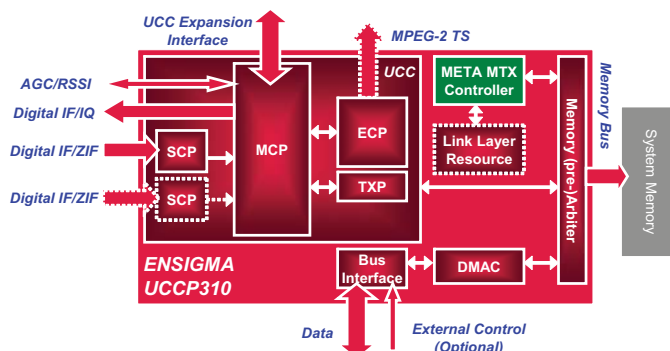
At CES 2010 Imagination demonstrated a test chip incorporating the latest ENSIGMA UCCP310 IP platform. This is the only multi-standard communications IP core available in the market today that can be demonstrated to deliver both 802.11 a/b/g Wi-Fi connectivity and a broad suite of demodulators required for digital TV broadcasts worldwide, including ATSC and all of the major European and Japanese terrestrial standards, in a single programmable IP core.

The UCCP310 platform is designed to support the ever increasing number of standards for communications in a proven, highly-efficient and extraordinarily flexible programmable solution.

UCCP310 delivers not only a growing suite of

standards required for worldwide cable, terrestrial and satellite TV as well as digital radio and mobile TV, but also Wi-Fi connectivity to enable the most comprehensive broadcast and communications functionality in consumer electronics products.

Utilising Imagination's UCC Series3 architecture, UCCP310 redefines the concept of integrating all forms of connectivity and broadcast communications into high volume consumer products.



Imagination at CES 2010



This year's CES saw a growth of almost 7,000 attendees from last year, with 120,000 industry professionals and more than 5,000 reporters, analysts and bloggers attending the show.

Thanks to ever growing interest in our technologies, Imagination carried out a record number of meetings at its suite in South Hall 4 of the Las Vegas Convention Center. The diary was already full before the show, but the team did their best to cope with the 'drop bys' who started to arrive once news of Imagination's key demos for the show circulated.

Technologies on show included the first public showing of the ENSIGMA UCCP310's Wi-Fi capabilities, new IP cores from the POWERVR

VGX and FRC families running real time in FPGA and the error concealment features of the latest POWERVR VXD video decode cores. Imagination also showed the latest applications running on real products and partner devices – including the latest S5PC110 mobile application processor from Samsung incorporating POWERVR SGX540 and Intel's forthcoming CE4100 'Sodaville' SoC for set-top boxes.

Imagination also had demonstrations running on a number of our partners' stands. Intel, NXP and Sigma Designs all showcased our STB demos showing the capabilities of OpenGL ES 2.0, as well as demonstrating the possibilities of combining video and 3D.

Around the show there were numerous products based on Imagination's technology: from new HD TVs with Imagination display enhancement through advanced phones to internet radios, tablet PCs, netbooks and STBs.



Forthcoming events



Mobile World Congress
Barcelona, Spain, 15-18 February 2010



Game Developers Conference
San Francisco, USA, 9-13 March 2010



Embedded Systems Conference
San Jose, USA, 26-29 April 2010



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