IGLOO and SNOWBALL
presented by ST-Ericsson

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SMARTPHONES CONTINUE TO EVOLVE

New device categories
- Smartphones for all
- Tablets
- Netbooks
- Gaming
- Dual-display
- E-book readers

Mobility in high-definition
- 1080p camcorder
- 3D gaming
- 20 megapixel cameras
- HDMI output

Rich mobile web experience
- Flash 10
- Integrated connectivity
- High resolution displays
- Mobile broadband HSPA+

Source: Strategy Analytics 2009

SMARTPHONES GROWING AT AN AVERAGE OF 20% PER YEAR
Growing interest in Tablets after the launch of Apple iPad

GPS penetration doubled in past 2 years

Over 3 billion iPhone applications downloaded

CONSUMER ELECTRONICS IS A STRONG GROWTH DRIVER
HIGHEST-PERFORMANCE APPLICATION PROCESSORS

For powerful and cool devices

NOVA™ A9500
- 1.2Ghz dual-core application processor
- Powerful graphics engine
- 1080p camcorder
- Up to 20 megapixel camera

Industry leading performance and power
A9500 - KEY FEATURES

CPU & GRAPHICS

Application subsystem
- SMP dual core ARM Cortex™-A9 with Neon™ @ 1GHz/1.2GHz

Graphics
- ARM Mali™ 400-1 @ 480 MHz
- OpenVG 1.1, OpenGL ES 2.0
- 2D HW accelerated composition engine

Memories and storage
- 32-bit LP-DDR2 400Mhz
- 2 x eMMC 4.41,
- SD3.0 (DDR50)

MULTIMEDIA

Video
- Video encode & decode up to 1080p
- Video image stabilization

Audio
- MP3, eAAC+, WMA, AMR-WB
- Dolby digital, DTS, AAC-LC (stereo and 5.1) decode

Display
- DPI : WXGA (1280x800)
- DSI : Dual XGA (1024x768) 30fps or Dual qHD (960x540) 60fps or Single XGA 60fps
- OLED screen support
- HDMI 1.4a

Camera
- Up to 20Mpix raw bayer sensors support, integrated ISP
- x2 MIPI CSI-2 interface

MISCELLANEOUS

Sensors
- 3D Gyroscope, Magnetometers, 3 axis Accelerometer, Pressure

Connectivity & Positioning
- WLAN IEEE802.11 a/b/g/n
- USB 2.0 High speed OTG 2.0
- Bluetooth v4.0 + LE FM RX-TX with RDS GPS, AGPS

Security
- TrustZone-based STE secure environment
- Flexible Secure boot, SIMLock, Radio Lock, IMEI protection, enhanced secure storage, HDCP

Open OS
- Linux
- Android
SEGMENTATION - NEEDS AND PRODUCTS

Chip validation and development

OPEN HW PLATFORM
for Tier1 and Tier2 OEM’s

Production grade pre-integrated solution to ease go to market

REFERENCE DESIGN
For ODM, OEMs Tier2&3, Application developer

Leverage benefit of open source community, develop ecosystem, OEM partners work with

SNOWBALL
For OEM, OEM partner, Open Source community
Open Source community
Based on Open Source Mainstreams and distribution channels - Linux, Linaro, MeeGo, Android

Catalyst for innovation
Customers and partners in various domain as; hardware and software services, tools, applications, research, etc

Easy access
Interactive web portal, affordable developer kits
“as is”-License
Accelerating your innovation to Market ready Solution

SW Development Kit

- Software development
- Technology access

Product Development Kit

- Product Prototyping
- Professional quality level
- Application kits (Tablet, modem..)

SKY-S9500-ULP-C11
SKY-S9500-ULP-C01

- Product
- Distribution channel
- Production
SNOWBALL

Full Connectivity
GPS, Bluetooth, FM, WiFi, USB, HDMI
HSI modem i/f

MEMS
Barometers
Magnetometer, accelerometer, 3D gyroscope

Battery operated
USB powered
USB charging
Backup battery

SKY-S9500-ULP-Cx1

Multimedia
3D Graphics, HD video, audio

Processors
DUAL A9 2x1GHz
DDR2 1GByte
Low power consumption

Professional quality level
Embedded eMMC.
Display, Imaging and System Extension
JTAG, MIPI debug
Small size 85x85
Platform testing tools
<table>
<thead>
<tr>
<th>Differentiating FEATURES</th>
<th>SNOWBALL</th>
<th>Competition A</th>
<th>Competition B</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU/DDR2</td>
<td>Dual A9, 2x1GHz/ 8Gb</td>
<td>Dual A9, 2x1GHz/ 8Gb</td>
<td>Dual 9,2x1GHz/8Gb</td>
</tr>
<tr>
<td>On board eMMC</td>
<td>4GB or 8GB</td>
<td>NO</td>
<td>0.5GB</td>
</tr>
<tr>
<td>Extension connectors</td>
<td>YES</td>
<td>NO</td>
<td>Yes</td>
</tr>
<tr>
<td>MEM Sensors</td>
<td>- Barometers</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>- Magnetometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Accelerometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 3D gyroscope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connectivity</td>
<td>WiFi, BT, FM,</td>
<td>WiFi, BT, FM</td>
<td>WiFi, BT</td>
</tr>
<tr>
<td>GPS</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>USB operated</td>
<td>Yes if battery operated</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Battery operated</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Professional tools</td>
<td>JTAG and MIPI DEBUG</td>
<td>Only JTAG</td>
<td>Only JTAG</td>
</tr>
<tr>
<td>Usable in Product</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Small size</td>
<td>YES (85x85)</td>
<td>NO (110x114)</td>
<td>NO (&gt;150x200)</td>
</tr>
<tr>
<td>Target Price</td>
<td>$199</td>
<td>$174</td>
<td>$399</td>
</tr>
</tbody>
</table>
SNOWBALL SDK

- **SNOWBALL SDK** is the Software Development Kit
- The SDK is a full featured **SNOWBALL**
- **SNOWBALL SDK** is available at a target price of only $200, thank to the sponsored components form partners
- **SNOWBALL SDK** is designed for prototyping and SW development, not for end products
**SNOWBALL PDK**

- **SNOWBALL PDK** is the Product Development Kit
- Professional quality design including ESD protection, EMI filter, on-board eMMC, professional extension connectors, small size
- Using the PDK as a module allows users to prototype and develop end-products
- For your own dedicated design, our components may be found in distribution channels
SNOWBALL add-on boards

- Several add-on boards are currently in development for the SNOWBALL PDK
- Several Touch Screen Display add-on boards are in development at Calao-system for
  - 10.4 inch
  - 10.1 inch using multi-touch technology
  - 4.3 inch
- Modem board using ST-Ericsson’s leading thin mobile broadband modems
- “Smart home” boards including ST-Ericsson’s 2G modems
- Your Boards
• Create and increase engineers relationship
• Create business relationship between ecosystem partner teams
• Drive Innovative open source projects that matter to partners
MARKET SUPPORT

Worldwide distributor
• For SNOWBALL

Local distributors
• For SNOWBALL
• For Nova A9500 chipset

IGLOO Community

FUTURE
• **WWW.IGLOOcommunity.org**

• Your dedicated Web site to interact within the community

• A place for the Technical community to support your project
  • Blog
  • Forum
  • Documentation
  • Link to relevant web site partners for SW and HW

• A place for Innovation

• A place to promote your innovation and take benefit of your added value into the community
- Kernel and BSP
- SW tools
- Ubuntu specific

- MeeGo specific

- Wiki, Forum, IRC
- SNOWBALL projects

- Android Specific
- SNOWBALL Boards
- HW documentation

- Nova A9500 Chipset documentation
- Optimized IP
- Advanced functionality

IGLOO Partners
- Your Contribution

WWW.IGLOOcommunity.org
• Get your **SNOWBALL** – an easy to use and inexpensive board powered by the Nova™ - that will support your innovation within the IGLOO community

• Support for a **full life-cycle**: from software development to embedded product application

• Very rich feature set in an amazingly small size: **GPS, MEMS** (gyroscope, Magnetometer, accelerometer, barometer). **Battery operated** mobile product

Announced and demonstrated at MWC
February 2011, Barcelona

Commercial launch in Q2 2011
THANK YOU