

CPT Catania

Proposal for stages/thesis

April 11, 2011

STMicroelectronics

ST Confidential

IPV6 Analysis

- Title:
 - IPV6: analysis, benchmarks and optimizations
- Type: stage/thesis
- Objectives:
 - To improve IPV6 performance
- Skills:
 - Linux OS internals,
 - Communication protocols: IP, TCP, UDP, ...
 - Programming languages: C
 - GNU tools
- Complexity: medium/high

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- Title:
 - Graphics tool to generate cross file system images
- Type: stage
- Objectives:
 - To implement a GUI tool for file system image generation (by resolving libraries/applications dependencies)
- Skills:
 - Linux OS
 - GUI development
 - Package management tools (rpm)
 - Programming languages: Java/python, C/C++
 - Tools: Eclipse
- Complexity: medium/high

- Title:
 - A *gstreamer* based multimedia application for ST40
- Type: stage
- Objectives:
 - Provide a multimedia application (player) for ST40 based on *gstreamer* framework
- Skills:
 - Multimedia application development
 - GStreamer framework
 - Programming languages: C, C++
 - Libraries: GTK
- Complexity: medium

- Title:
 - Eclipse based *gstreamer* pipeline editor
- Type: thesis
- Objectives:
 - Implement a plug-in for Eclipse providing a *gstreamer* pipeline editor
- Skills:
 - GStreamer framework
 - Eclipse plug-in development
 - Programming languages: Java, C, C++
 - Tools: Eclipse
- Complexity: medium/high
- Reference: *gst-editor*

- Title:
 - Eclipse based *gstreamer* IDE (*gst-ide*)
- Type: thesis
- Objectives:
 - Implement a plug-in for Eclipse providing a graphical environment to support the development of GStreamer based plug-ins and applications
- Skills:
 - GStreamer framework
 - Eclipse plug-in development
 - Programming languages: Java, C, C++
 - Tools: Eclipse
- Complexity: medium/high
- Reference: *gst-apps*, *gst-templates*

- Title:
 - Port to ST40 and enhance a open source Flash decoder
- Type: thesis
- Objectives:
 - Port to ST40 an open source implementation of a Flash decoder library. Bring to a product level: optimized and integrated with accelerated graphics libraries.
- Skills:
 - Flash decoder and players
 - Graphics concepts & libraries
 - Programming languages: C, C++
 - Tools: GNU tools
- Complexity: medium/high
- Reference: OpenSWF, Gnash, SWFdec

Optimize decompression algorithm for GIF & PNG

- Title:
 - Optimize performance of GIF & PNG decompression (on ST40)
- Type: thesis
- Objectives:
 - Improve the performance of the standard GIF & PNG libraries for decompression tasks
- Skills:
 - Compression algorithm knowledge
 - ST40 architecture
 - Programming languages: C
 - Tools: GNU tools
- Complexity: medium/high
- Reference: libpng, libgif

- PixMan optimization for ST40
- CE-HTML
- Canvas 2D/3D (HTML5)
- Games
- DirectFB 1.5 (Video stereoscopic)
- JPEG2000
- Android on ST40