Gentoo/Linux on the PowerPC Architecture

Luca Barbato <lu_zero@gentoo.org>
Lars Weiler <pylon@gentoo.org>

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Content

- Introduction to the PowerPC Architecture

- Comparision to Gentoo on x86

- Software troubles

- Development team

- Succeded experimental work

- Future

Introduction to the PowerPC Architecture

- **P**erformance **o**ptimized **w**ith **e**nhanced **R**ISC **P**erformance **C**hip

- Consortium of Apple, IBM and Motorola (Freescale)

- Started in 1991

- 32-bit and 64-bit

- Big-Endian but also Little-Endian capable

- AltiVec vectorunit

Systems that use PPC

- Apple-Macintosh computers
- IBM RS/6000, iSeries
- Motorola PowerStack RISC PCs
- Nintendo GameCube, Xbox 2
- Embedded systems
- Amiga, AmigaOne
- DBox 2

Supported PPCs by Gentoo

- All NewWorld Apple-Macintosh:

  - G3

  - G4 (with AltiVec)

  - G5 (in 32-bit-mode – in 64-bit-mode it's Gentoo/PPC64)

- Genesi's Pegasos (I and II)

- Some few OldWorld Apple-Macintosh

- Probably RS/6000

Comparision to Gentoo on x86

- Installation

- Toolchain

- Kernel

- Boot-Loader

- Special packages

Installation

- The steps are roughly the same

- Partition layout is different
  - Macintosh partition table or Amiga table
  - 800k-bootstrap-partition

Toolchain

- Switched to gcc-3.4 as first arch in Gentoo in summer 2004

  - gcc-3.3 caused too many problems on PowerPC

  - The move caused to end OldWorld support officially

- Based on a well tested glibc and binutils

Kernel

- 2.6 kernel without special patches

- Configuration looks like on x86

- Quite everything works, no major endianess-problems are known

- Bzip2 packed kernels are unuseable

Boot-Loader

- YaBoot for NewWorld
  - 800k-bootstrap-partition
  - Reads quite every file-system
- BootX for OldWorld
  - Needs Mac OS 7/8/9 for booting
- Forth Bootmenu for the Pegasos
  - Easier than handling files on the partition
- Future: grub2 ?

Special Packages

- Mostly for Power-Management on Apple Mobile Devices:
  - pbbuttonsd with powerprefs and gtkpbbuttons
  - pmud
- Mac-on-Linux (MoL)

Software troubles

- Missing support for:
  - Java Browser Plugin
  - Flash
  - Video Codecs
  - All that depends on Windows libraries
- Some software is not endianess-aware – they compile, but they break on runtime (audio applications)

Development team

- About 25 Developers with a PPC box

- The sponsorship of 13 Genesi Pegasos machines brought us some new Devs

- The core team is located in Europe and the United States

- First-time porters are still team members

- Up to date in comparision with x86

Operational tasks of the project

- Testing and stabelising packages

- Take care for GLSA

- Bug-hunting

- Co-work with release engineering for a release

- Co-work with the documentation team

- Being up to date in general Gentoo evolution

Succeded experimental work

- X enabled LiveCDs

- CUBE GameCD for the Pegasos

- First Linux running on a Mini Mac was Gentoo (out of the box)

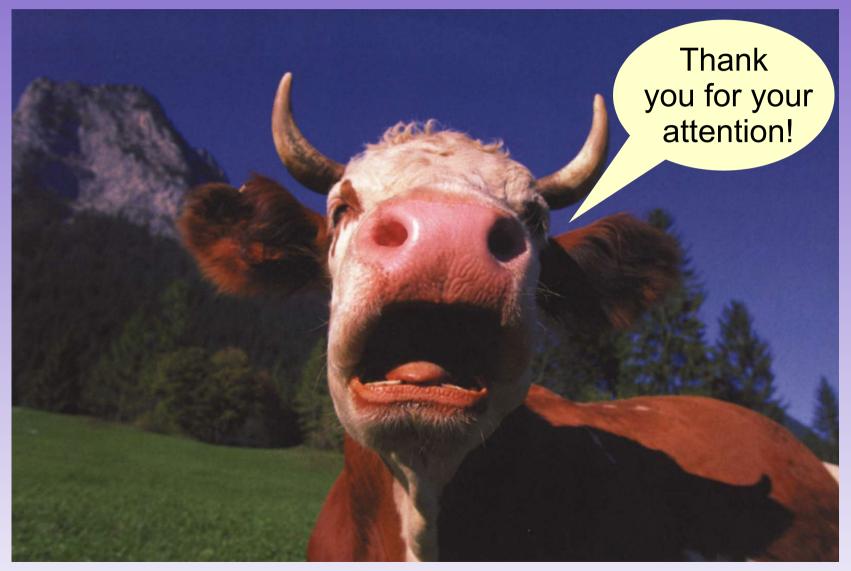- Cross-development LiveCD for Linux and Mac OS X

Future

- Deluxe XliveDVD
- OldWorld support back in 2005.1
- Better RS/6000 support
- More GameCDs for more PowerPCs
- Binhost with binary packages for download

http://ppc.gentoo.org/