



IBM Linux Technology Center

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# Linux on the Playstation3 - an overview



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# Linux on the PS3 - Topics

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- **Overview of the PS3**
- **The Cell Broadband Engine**
- **Distro Support**
- **User experience**
- **Supported Applications**
- **Community Buzz**
- **What's not to like ?**
- **Where to from here ?**

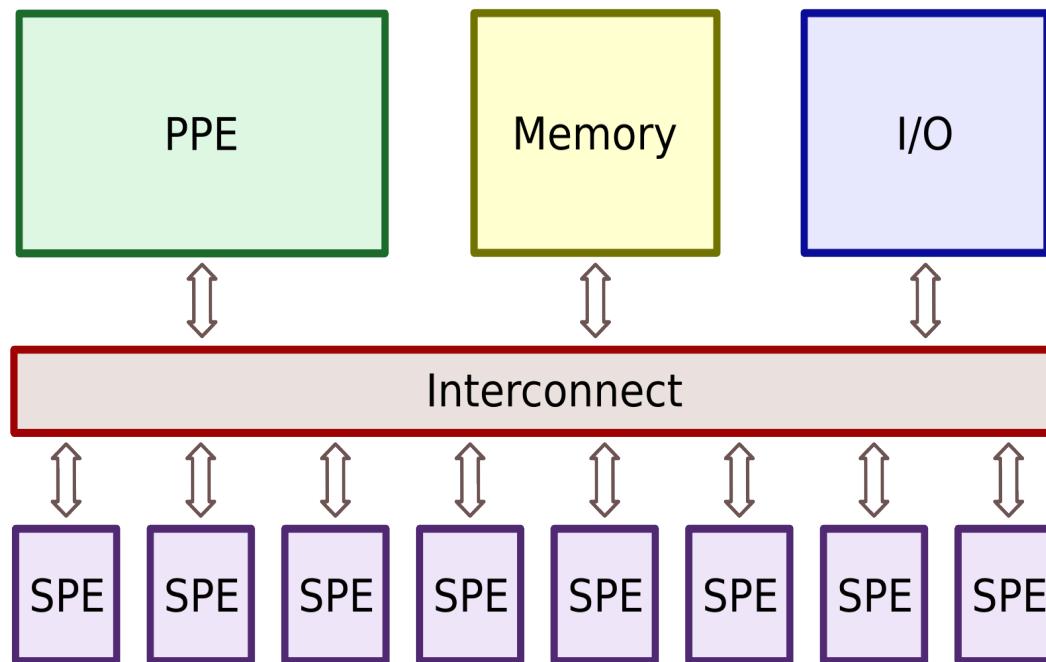


# Linux on the PS3 - Overview

- **PS3 Hardware configuration**
  - ▶ *CELL Chip w/six available SPEs*
  - ▶ *256MB Rambus main memory*
- **Firmware support for “OtherOS”**
  - ▶ *Designed to support other operating systems from the outset*
  - ▶ *Hypervisor based environment*
    - All HW access abstracted including 2D (only) frame buffer
- **High resolution (720 lines+) requires HDCP/HDMI**
  - ▶ *Means a new monitor for many users*
  - ▶ *Remote access or composite video are alternatives*
- **From Linux perspective, looks like any other LinuxPPC64 system**
  - ▶ *Additional kernel interfaces and libraries to support SPEs*
  - ▶ *Recent generic PPC32 or PPC64 kernels work fine*
    - Sound broken on latest kernels - temporarily...



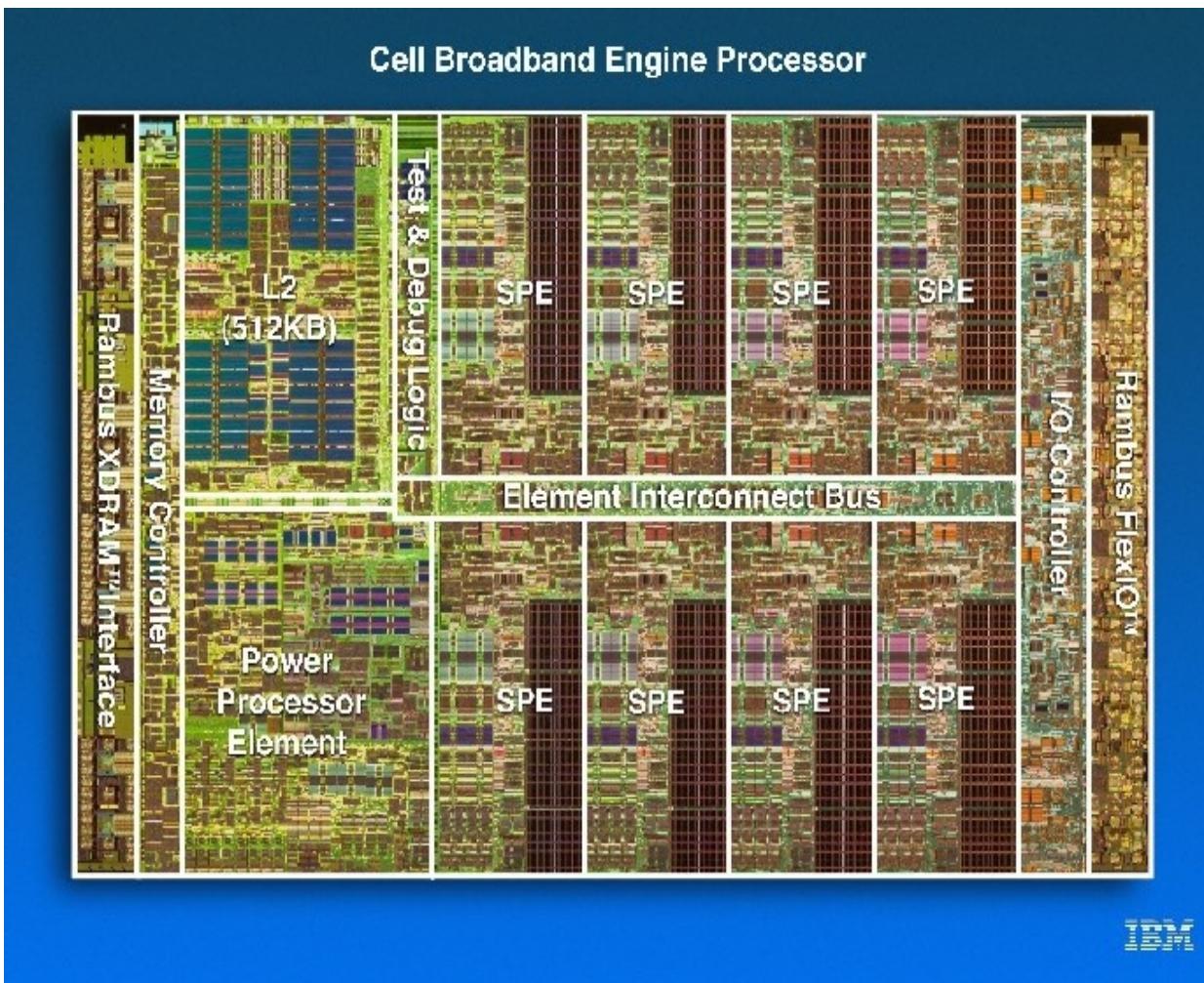
# The Cell Broadband Engine



- **PPE – 64 Bit PowerPC core**
  - ▶ 3.2GHz, 2 Way SMT, 512kB L2
- **SPE – SIMD Engines**
  - ▶ 128 GPRs, 128 bit wide / 4 x single precision float
  - ▶ 256kB local store



# The Cell Broadband Engine



# Linux on the PS3 – Distro Support

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## ▪ **Yellow Dog Linux (YDL) (Terrasoft Solutions)**

- ▶ *Official support for PS3 through formal tie-in with Sony*
- ▶ *Install DVD available*
  - Support included if purchased
- ▶ *PS3s with YDL pre-installed available through their website*

## ▪ **Gentoo**

- ▶ *First community distro with install support*
- ▶ *LiveCD and InstallCD images available*

## ▪ **Debian**

- ▶ *LiveCD image available*
- ▶ *Installer in the works*



# Linux on the PS3 – Distro Support

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## ▪ **Ubuntu**

- ▶ *PowerPC Edgy & Feisty releases can be bootstrapped and will run normally*
  - Test iso's now available for direct install
  - psubuntu.com is a good reference

## ▪ **Fedora**

- ▶ *Latest release can be installed by using separate install CD along with regular FC PPC ISO*
- ▶ *Direct install CD in the works*

## ▪ **petitboot**

- ▶ *Graphical bootloader based on kboot*
- ▶ *Allows user-friendly selection of which OS to boot*
- ▶ *<http://ozlabs.org/~jk/projects/petitboot/>*



# Linux on the PS3 – User Experience

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- **Hey, it's just like a computer!**
- **200MB free memory is easy to exceed**
  - ▶ *Openoffice + Firefox will give swap space a workout*
- **PPU only performance is modest**
  - ▶ *Not unique to PS3*



# Linux on the PS3 – Supported Apps

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- **All the usual applications work**
  - ▶ *Open Office, Firefox, Thunderbird etc. etc.*
    - Lack of PPC Flash plugin a nuisance
- **Real win will be when apps are ported to use SPEs**
  - ▶ *mplayer*
  - ▶ *speex/Asterisk*
  - ▶ *gnuradio*
    - Porting work underway in ham community
  - ▶ *Second Life client*
  - ▶ *etc...*



# Linux on the PS3 – Community Buzz

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- **Gentoo**

- ▶ *Saw a 3x increase in visitors to IRC channel on PS3 release*

- **linux.conf.au 2006**

- ▶ *In conjunction with Terrasoft did various demos of the PS3*
    - Lots of interest from general public and conference attendees alike
    - “See Mum, it's a computer as well, you should buy me one!”

- **Programming Competitions**

- ▶ *Terrasoft/HPC Consortium Hackfests*
  - ▶ *IBM University Challenges*



# Linux on the PS3 – What's not to like ?

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- **Lack of OpenGL support may limit applications**
  - ▶ Possible that community will create SPE based software GL
- **Small memory footprint**
  - ▶ Ok for home, but harder for “serious” developers
- **Need for HDMI/HDCP compatible monitor**
  - ▶ Nuisance if you've already got an expensive monitor!



# Linux on the PS3 – Where to from here ?

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- **Making use of SPEs crucial**
- **Getting hardware to key projects**
- **Find cool uses :)**
- **Huge potential install base**
  
- **Questions ?**
- **Thankyou!**



# Linux on the PS3

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