# What's Up, X?

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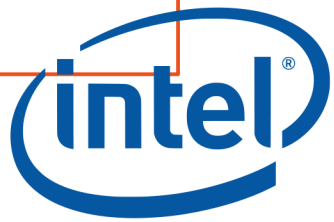
# Directions for X (and other ramblings)

- Current Release - X 7.2
- Xserver Refresh - Xserver 1.2.1
- Next Release - X 7.3
- Future Plans

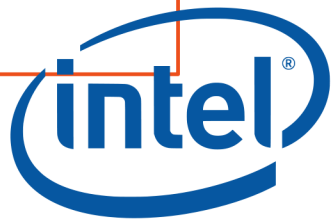



# But, before we continue...

- Fontconfig and defoma
- fontconfig.defoma is in perl
- perl + keithp == bad
- Currently all fonts linked in /var/lib/defoma/fontconfig.d
  - This is evil
- Just need to add dirs to font configuration
  - Need to parse fonts.conf files to extract dir list
- Can anyone help?

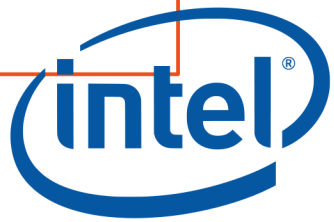
# Xserver 1.2

- Part of X 7.2
- Coverity love
- Dead code elimination, warnings reduced
- DPMS is on by default
- Switch to shared libdrm
- Replace XC-SECURITY code with calls to XACE
- AIGLX updates
- 1790 files changed, 72853 insertions(+), 111391 deletions(-)

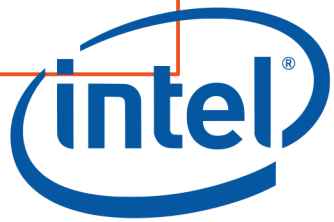
# libX11 1.1.1

- Part of X 7.2
- Integrated XCB support
  - XCB provides transport for libX11
  - Use XCB and Xlib on same connection
  - XCB threading support is robust
  - XCB catches locking bugs in extensions
- Coverity love
- Cache compose tables across applications

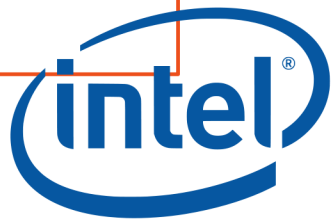
# Xserver 1.2.1

- Refresh after X 7.2
- ABI compatible with 1.2
- EXA for real
  - New acceleration architecture
  - Effectively use all video memory
  - Address modern application requirements
- RandR 1.2
  - Multi-monitor support
  - Full mode lines + extra properties

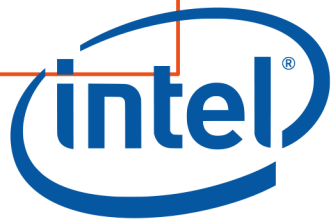
# Xserver 1.3

- Part of X 7.3
- Not ABI compatible with 1.2
- PCI rework
  - Use kernel information
  - Remove PCI manipulation from X
  - Requires updates to all drivers
- Input hotplug
  - HAL-based
  - Notification of new devices
  - Server adjusts automatically
  - Multiple mice, keyboards
  - Supports whole Xinput range

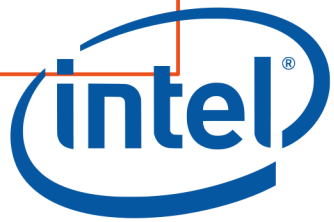
# Mesa 6.5.2

- OpenGL 2.0 API support
- New memory manager
  - Supports writable objects
  - Framebuffer objects
  - Writable textures
  - Requires driver updates
  - Only supported on Intel 915

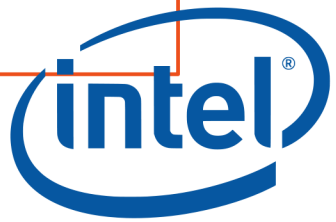
# Memory Management

- Current GPU memory management is ad-hoc
  - Frame buffer fixed size
  - Separate allocators for X and Mesa
  - X split into many pieces as well
- Unify and generalize
- Mesa 6.5.2 provides infrastructure

# Intel Driver

- Modesetting FTW, ta-ta BIOS
  - Completely replaces mode setting
  - Supports RandR 1.2
  - Supports all monitors, all outputs
  - EXA fully supported
- Intel funded development and testing
  - 6 full-time engineers
  - Drivers ship at chip launch
  - Some hardware available *before* launch

# Intel Engagement

- Join Communities
- Use existing, well accepted licenses
  - All kernel stuff is GPL
  - All X stuff is MIT
- Develop in public
  - Discussions on public lists
  - Bugs in public bugzillas
  - Code developed in upstream repos … as much as we can
- Engage with distributions
  - Provide hardware/drivers before launch
  - Zero-day drivers available in major distros
- No binary-only kernel modules

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# Further Afield

- Research kernel-based mode setting
  - RandR 1.2 provides general API
  - Kernel messages
  - Suspend/resume support
- Non VT-based multiple X session support
  - Improved user switching
  - Multiple X servers on one screen
- H.264 video acceleration infrastructure
  - XvMC supports MPEG
  - Expose programmable hardware
- World Domination
  - is proceeding according to plan