



# *NetBSD: The Port to ia64*



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# *Target Audience*



- ⇒ OS enthusiasts
- ⇒ Open Source enthusiasts
- ⇒ Interest in Virtual Memory subsystems
- ⇒ Prospective Open Source developers
- ⇒ Prospective linux apostates. :-)



# *Outline*



- ⇒ Why NetBSD ?
- ⇒ Why Itanium
- ⇒ The story so far
- ⇒ The road ahead



# *Why NetBSD*



## ⇒ Code:

- Clean Code: Software Interfaces well defined and documented. ( man (9) )
- Very portable code
- Makes a good project of medium challenge

## ⇒ Community:

- Highly competent Developer Base
- Democratic Engineering
- Cathedral Development model
- DTRT, no compromises



# *Why Itanium*



## ⇒ Architecture

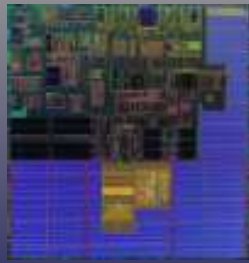
- EPIC
- Speculation, Predication
- RSE
- Virtual memory
  - TLB features
  - Address Space
  - Multiple page size

## ⇒ Market

- High end server ( Fujitsu, Unisys, HP, Dell )
- High end graphics ( Silicon Graphics )



# *The Story so far*



- ⇒ Toolchain
- ⇒ Boot loader ( ski, efi )
- ⇒ Kernel:
  - ski console driver
  - Debugger: BSD licensed Unwind Library
  - Virtual Memory subsystem
    - pmap module( tested kernel malloc, 16K page size )
  - Process Control
- ⇒ Test Platform: HP ski emulator



# *The Road Ahead*



- ⇒ Boot single user mode
- ⇒ “Platform Port”
- ⇒ SMP support
- ⇒ Kernel Biglock
- ⇒ NUMA
- ⇒ Multi-Page Size
- ⇒ NetBSD/ia64/Xen



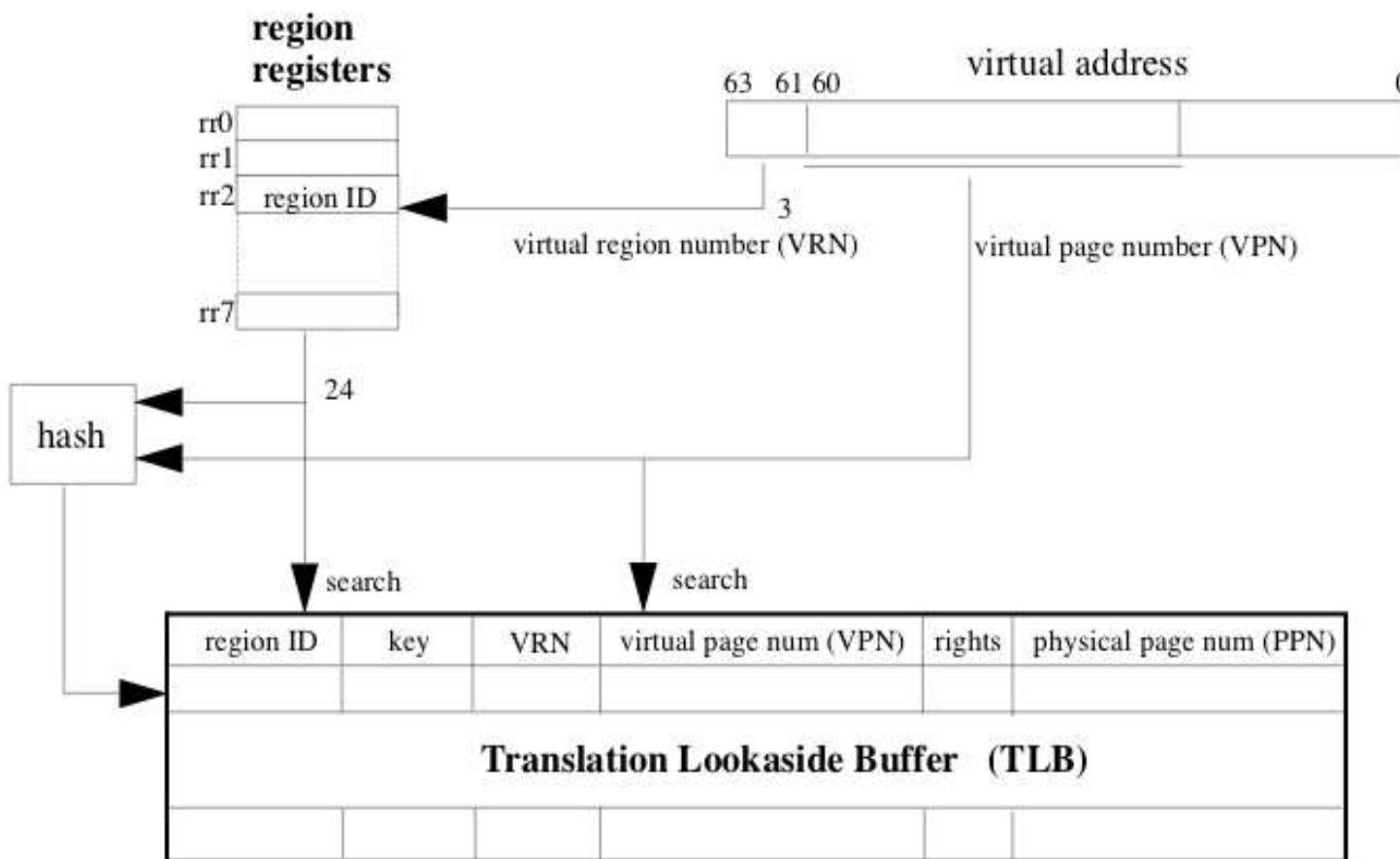
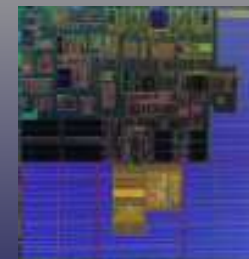
# *Useful links, Reference*



- ⇒ <http://www.NetBSD.org/Ports/ia64>
- ⇒ <http://www.FreeBSD.org/platforms/ia64/index.html>
- ⇒ Intel Itanium Architecture Software developer's Manual, vol. 2: "System Architecture"
- ⇒ <http://www.gelato.org/>

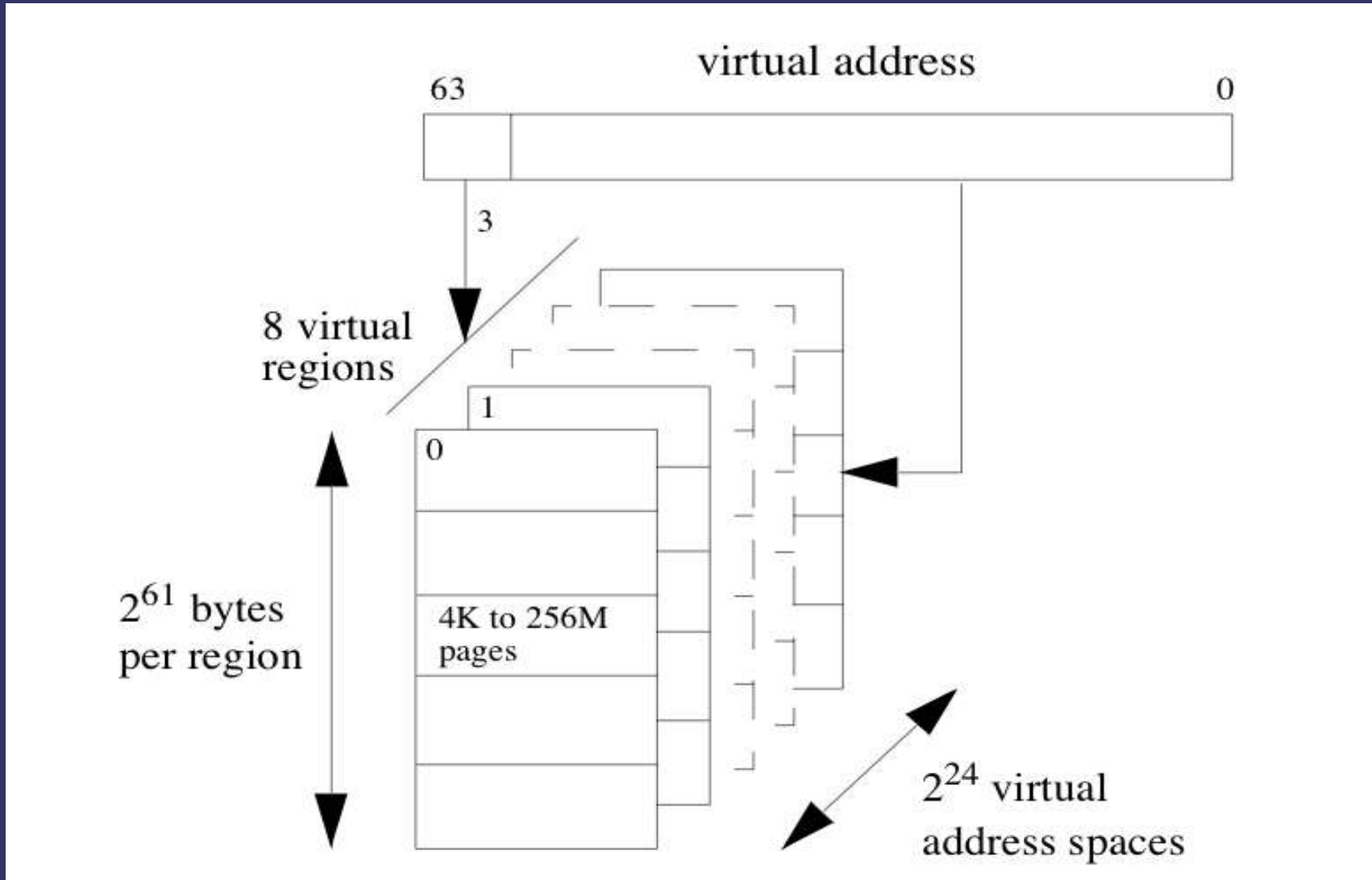


# VtoP lookup



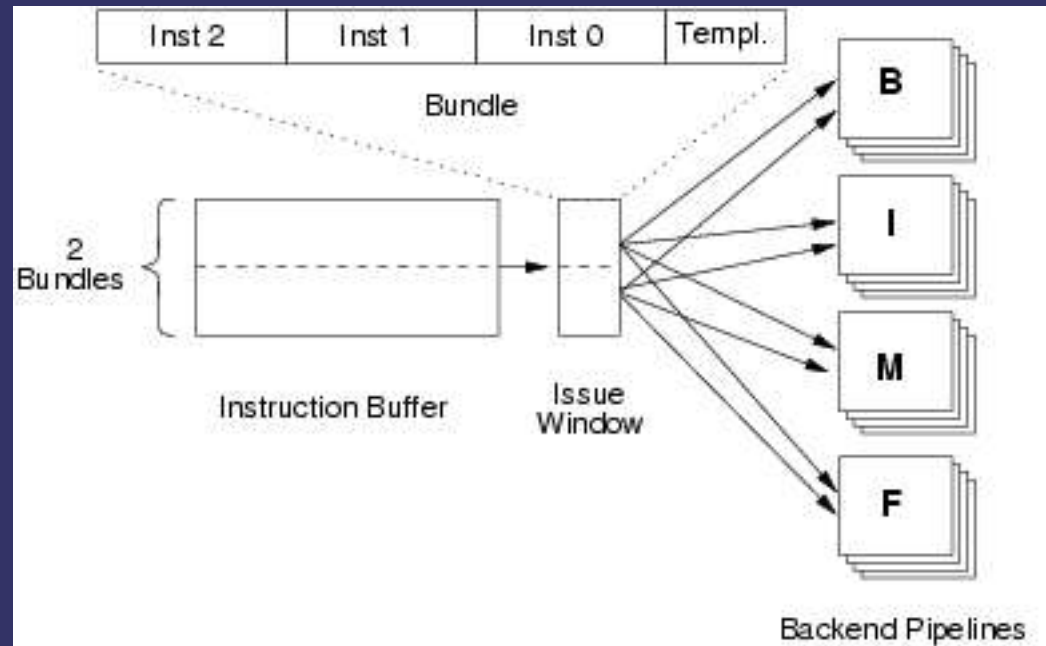


# VM Layout





# EPIC





# RSE

