

# Intel Network Processor – IXP 1200

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# Overview

- What is a Network Processor & why do we need it?
- Introduction to Intel IXP 1200 and it's architecture
- Life of a packet in IXP 1200!
- Applications, programming environment, hardware & cabling issues based on IXP 1200

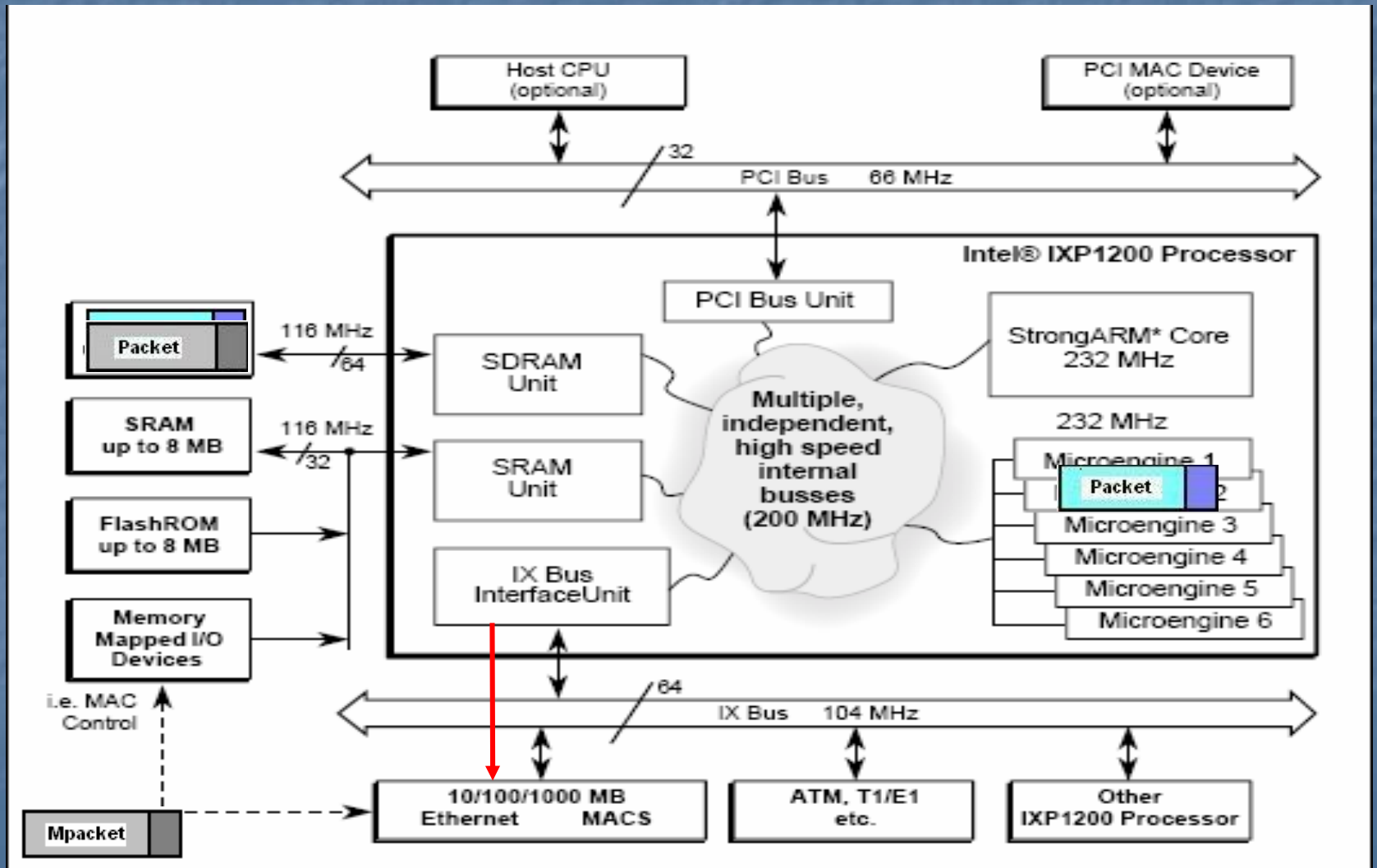
# Evolution of Network Processors

- General Purpose Processors (GPP)
  - Cheaper
  - Wire speeds outnumber the processing speeds
- Application-Specific Integrated Circuit (ASICs)
  - Costlier
  - Fast enough to process data at wirespeed
  - Hardware implementation of protocols and hence inflexible
- Network Processors
  - Relatively cheaper
  - Multiprocessing environment
  - Packet processing at wire speed

# Network Processors

- RISC based processors optimized for network operations
- Multiple pipelined/paralleled processors to enhance packet processing capability as compared to a single stronger processor
- Typical operations while packet processing:
  - Classification
  - Modification
  - Queuing
  - Other operations like security and policing operations, compression, traffic metrics etc.

# IXP 1200



# Applications based on IXP

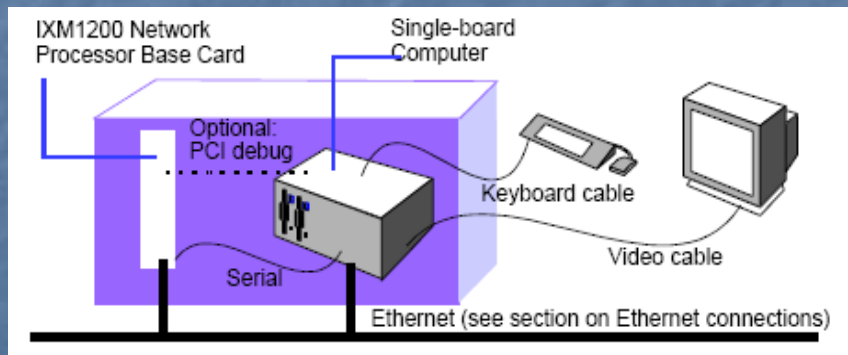
- Ethernet Bridge
- IP Router
- Firewalls
- Traffic Manager
- DOS attacks
- In corporate environment with laptops coming in and out

# IXP Software Development Kit (SDK)

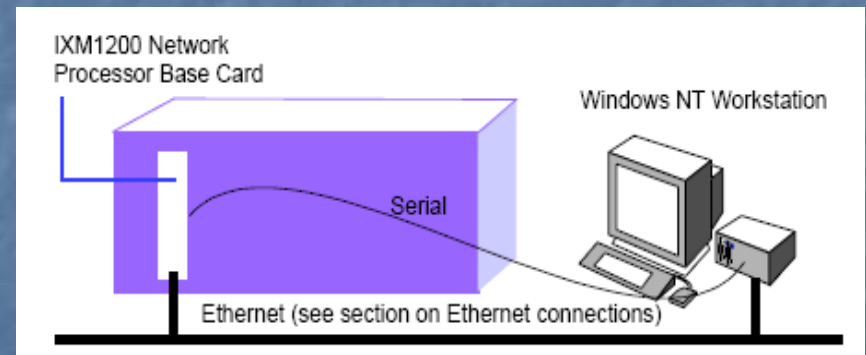
- VxWorks
  - Embedded software tool for developing Microengine applications
  - Has a microengine C compiler
  - Used on windows machines
  - Linux counterpart exists
  - Wind River Tornado IDE for developing StrongARM application code

# Hardware & Cabling Configuration

- Configuration 1 – The single-board computer on the IXP1200 with an external keyboard & monitor and windows NT as OS



- Configuration 2 – An external Windows NT workstation attached through ethernet and serial cabling





# Work being done

- Proper implementation of Ethernet Bridging example from the book *IXP1200 Programming* by E Johnson & A Kunze
- Implementation of Ethernet packet forwarding with next hop decision based on VS co-ordinates

If (Questions)

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Please ask;

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Else

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THANK YOU 😊;

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