Introduction

- ■ **Four different kinds of exceptions are executed**

  - – Interrupt generated by the Interrupt Controller

    - ◆ Suspend current program and branch to interrupt service routine

  - – DMA transfers issued from the Peripheral Event Controller

    - ◆ Performs a single byte/word transfer between two memory locations

  - – Software Traps caused by the Trap instructions

    - ◆ Trap instruction generates a software interrupt

  - – Hardware Trap issued by faults or specific system states

    - ◆ Class A traps (NMI, Stack-overflow/underflow, SW-break)

    - ◆ Class B traps (Undef. Opcode, PMI Access Error, Protection fault,Illegal Word Operand Access)

XC166 architecture

Introduction

- **16 Priority Level Interrupt system**

  - Up to 128 interrupt nodes with separate interrupt vectors on 16 priority levels, each priority level consists of 8 group level

  - Very short interrupt response time(typ. 8 cycle) in case of internal program/data execution

  - Fast external interrupt

  - Programmable location of vector table

  - Interrupt arbitration

  - Fast bank switching

  - Interrupt Jump Table Cache (fast interrupt)

XC166 architecture

Introduction

- **Single cycle data transfer facilities via Peripheral Event Controller (PEC)**

    - 8 PEC channels

    - Programmable PEC interrupt request level (level 15 down to level 8)

    - Separate interrupt level for PEC termination interrupts (end of PEC interrupt) selectable

    - Full 24 bit addresses for source and destination pointers, supporting any mapping of source and destination devices within the total address spaces

XC166 architecture