



## II2 - IPMI v2.0

### This course covers Intelligent Platform Management Interface version 2

#### Objectifs

- Explaining the functional units used in an IPMI system (BMC, SDR, SEL, PEF, etc.).
- Understanding the bus protocols on which IPMI messages are transferred : I2C, IPMB, SMBus.
- Clarifying the chassis management based on ICMB protocol.
- Sending alerts through LAN or serial/modem interfaces.
- Explaining the parameterizing of message channels.
- Studying the IPMI commands through sequences.
- Detailing how system software and BMC embedded software interact.
- This course has been delivered several times to companies developing complex processing systems.

*A more detailed course description is available on request at [info@ac6-training.com](mailto:info@ac6-training.com)*

#### Prerequisites

- Experience of a 32-bit processor, such as Freescale ColdFire or AMCC 4XX microcontrollers.
- Knowledge of Ethernet is recommended, see our course reference [N1](#)

#### Plan

##### INTRODUCTION TO IPMI

- Objectives
- BMC, required functions
- Serial port and LAN interfaces
- System Management Software, system interfaces
- Messaging
- System Event Log
- Field Replacement Unit
- Platform Event Filtering
- Interaction between host software and IPMI

##### X86 SYSTEM MANAGEMENT MODE

- Platform specific software
- Automatic save / restore mechanism when SMI# is asserted
- Entering low power modes

## IPMI I2C-BASED PROTOCOLS

- I2C protocol basics, transfer sequence, START / STOP session delimiters
- Electrical interface
- Addressing, 7- and 10-bit modes, broadcast
- Clock stretching
- Multi-master operation
- Accessing a serial EEPROM
- Intelligent Platform Management Bus [IPMB]
- Interconnection topology
- Request / response protocol
- Interleaving requests and responses
- Missing response handling
- Network functions and commands
- Completion codes
- Hardware interface, connectors
- System Management Bus [SMBus]
- Physical layer
- Device identification
- Commands
- Bus protocols
- Address resolution protocol, related commands

## INTELLIGENT CHASSIS MANAGEMENT BUS

- Introduction, possible topologies, addressing
- Physical layer
- Link layer, framing, packet format
- Bridged ICMB-to-IPMB request message
- ICMB-to-IPMB response message
- Event message
- Arbitration and collision
- Dynamic address assignment
- Population discovery
- Bridge command summary, chassis commands

## IPMI MESSAGING

- Message interface description
- Channel number, protocol type, medium type and access mode
- GetChannelInfo command
- BMC channels
- Event Message Buffer
- User and password support
- Session activation and IPMI challenge response
- IPMI messaging support commands

## SYSTEM INTERFACE

- Keyboard Controller Style [KCS] interface
- Server Management Interface Chip [SMIC]
- Block Transfer [BT] interface
- SMBus System Interface [SSIF]

## LAN INTERFACE

- Introduction to RMCP
- VLAN support
- LAN configuration
- Sessions
- IPMI messages related to LAN interface
- Serial over LAN

## **SERIAL / MODEM INTERFACE**

- Serial / modem capabilities
- Serial port sharing
- Connection mode auto-detect
- Basic mode
- PPP/UDP mode
- Serial / modem callback
- Terminal mode
- IPMI messages related to serial / modem interface

## **EVENT MESSAGES**

- Critical events and system event log restrictions
- Event receiver handling of event messages
- Platform Event Filtering [PEF]
- Event Filter Table
- Alert Policy table
- Event filter, policy, destination and string relationships
- Event commands, PEF and alerting commands

## **IPMI DEVICE GLOBAL COMMANDS**

- GetDeviceID
- ColdReset
- WarmReset
- GetSelfTestResults
- ManufacturingTestOn
- GetDeviceGUID

## **SDR REPOSITORY**

- Discovering management controllers and device SDRs
- Reading the SDR repository
- Sensor types and data conversion
- Sensor initialisation agent
- Related commands

## **FRU INVENTORY**

- FRU format
- GetFRUInventoryAreaInfo command
- ReadFRUData command
- WriteFRUData command

## **ACTEL FUSION SUPPORTING IPMI APPLICATIONS**

- Analog functions
- Embedded flash memory block
- DirectCore IP in IPMI

## Renseignements pratiques

**Durée : 3 jours**  
**Prix : 1650 € HT**



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