

Embedded Microprocessor Design

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I.

xDSL, Web interconnection, TCP/IP, DVD, Consumer electronics, 가, 가

NEC, Hitachi, 68xx, MPC, Motorola, x86, AMD, Intel (MCS960), (1), 가, 8bit, (assembly language), C, (RTOS : Real Time Operating System), C, 가

(source), MCS51, 가

(2), Intel(AMD) x86, 가, 16bit, IMS16B-Tahoe(1)

IMS16B - Tahoe

II.

hardwired logic (chip) 가 가

(core) .

programmable core 가 peripheral

가 . (core logic)

가 (IP) .

peripheral (2),

Decoding logic, Datapath, Bus interface logic

peripheral core 가 interrupt

controller, DMA controller, memory controller Timer,

UART, IO controller .

Instruction Set Decoding

가

가 가 .

IMS16

Intel x86

, Datapath

(3).

Decoding

Datapath PLA

(Programmable Logic Array) FSM (Finite State Machine) , CISC

PLA variable instruction cycle FSM

RISC DSP state . Chip

critical path PLA 0.5um TLM CMOS 60MHZ .

60MHz Cache controller/memory

(4) .

가

access time wait state

generate logic .

Peripherals

peripheral , UART
 (pin count) I²C EDO
 DRAM Synchronous DARM I²C controller, SDRAM
 controller 10/100BASE-T
 MAC(Medium Access Control) controller
 IMS16B -Tahoe on-chip peripheral 16B core 가
 (System-on-Chip) IP
 Plug-n-Play

) 가 (chip

CISC pipeline branch prediction 16bit
 2 stage pipeline RISC
 DSP

(golden vector)
 가 predictable sequence random-and-
 complex
 Predictable sequence PLA
 assembly code C code 103
 chip

Random-and-Complex
 boot code (routine) ANSI C code C
 RTOS
 randomness

가 가

Intel/AMD/NEC x86 16bit

MS Windows

Linux가

RTOS TCP/IP

(Source Code)

IMS16B-Tahoe

()

가

Applications

60MHz 16bit

AMD/NEC 16bit 18x

8bit MCS51, AVR, PIC

32bit RISC

DSL IP

(IP), Web Camera

. Infinior MicroSystems

EVM board

(

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