# 組合語言 Assembly Language 資訊工程系四日一B 課號 2622

Instructor:洪士程

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Room:理工大樓E726

Tel: 7801

## Course Time & Office Hours

- **Course Time**
- Wednesday 5,6,7 (13:30 16:20)
- Classroom: E-519

- Office Hours
- Monday 9:00-12:00

## Credits

- Required or Elective Required (必修)
- Credits 3 Credits (三學分)

## Goal

- Understand the architecture of 8051.
- Leaning 8051 programming.
- Prepare for the 8051 laboratory.

8051 is a microcontroller.

• 1981, Intel MCS-51

#### Microcontroller:

- A smaller computer
- On-chip RAM, ROM, I/O ports...
- Single-purpose

# Some Products Using 8051 (1/2)

- Security systems
  - Sensor, motion detector, power detector, smoke detector
  - Audio alarm, user authentication

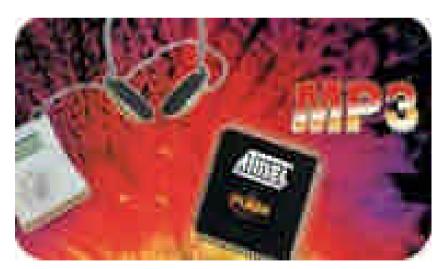




- Whitegoods and Household Appliances
- Ref: http://www.maxim-ic.com/solutions

# Some Products Using 8051 (2/2)

- MP3 player
  - standalone hard-wired MPEGI/II Layer-3 decoder with C51 microcontroller core handling dataflow control and MP3-player control.
- Smart card reader
- USB controller



Ref: http://www.atmel.com/products/MP3/

## Text Book

- The 8051 Microcontroller and Embedded Systems, Using Assembly and C. 2nd Edition, Prentice Hall, 2006.
  - Muhammad Ali Mazidi
  - Janice Gillispie Mazidi
  - Rolin D. McKinlay

#### Reference Books

#### Reference:

Kenneth J. Ayala, The 8051 Microcontroller,
3rd edition, THOMSON, 2005.

# Schedule of Progress (1/3)

- Introduction to computing (week 1)
- The 8051 micro-controllers (week 2)
- Introduction to Keil C (week 3)
- Assembly language programming (weeks 4,5)
- Jump, loop, and call instructions (weeks 6,7)
- I/O port programming (week 8)
- Midterm (week 9)

# Schedule of Progress (2/3)

- I/O port programming (week 10)
- 8051 addressing modes (weeks 11,12)
- Arithmetic & logic instructions and programs (week 13)
- 8051 Hardware Connection and Intel HEX file (week 13)
- 8051 Timer programming in Assembly (weeks 14)

# Schedule of Progress (3/3)

- 8051 serial port programming in Assembly (week 15)
- Interrupts programming in Assembly (week 16)
- Timer programming (week 17)
- Final exam (week 18)

#### Resources

- Text Book
- Handout

http://lms.ctl.cyut.edu.tw/

LMS-數位學習系統

8051-CH0.pdf ~ 8051-CH12.pdf, keil\_C.pdf

Software

Keil  $\mu$  Vision2

### Evaluation

- Homework (10%)
- Programming (40%)
- Mid exam (25%)
- Final exam (25%)

# Made in Taiwan→Made by Taiwan

Production		2006	2007
Notebook	Made by Taiwan	67%	72%
	Made in Taiwan	21%	9%
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	Made in Taiwan	26%	16%
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	Made in Taiwan	67%	50%
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WLAN	Made by Taiwan	91%	95%
	Made in Taiwan	78%	53%
Cable Modem	Made by Taiwan	53%	53%
	Made in Taiwan	41%	26%

# 重點技術

- 2010年日本預測之重點科技:
  - 一地球科學與環境技術,資訊科技,生命科學技術,社會基礎建設技術,材料技術,製造與管理