

組合語言

Assembly Language

資訊工程系四日一B

課號 2622

Instructor：洪士程


E-Mail: [schong@cyut.edu.tw](mailto:schong@cyut.edu.tw)

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.
- 📄 Learning 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://lmsctl.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%
Ethernet Switch	Made by Taiwan	43%	38%
	Made in Taiwan	26%	16%
CD/DVD Disc	Made by Taiwan	69%	61%
	Made in Taiwan	67%	50%
Cell Phone	Made by Taiwan	9%	8%
	Made in Taiwan	6%	5%
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:

- 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