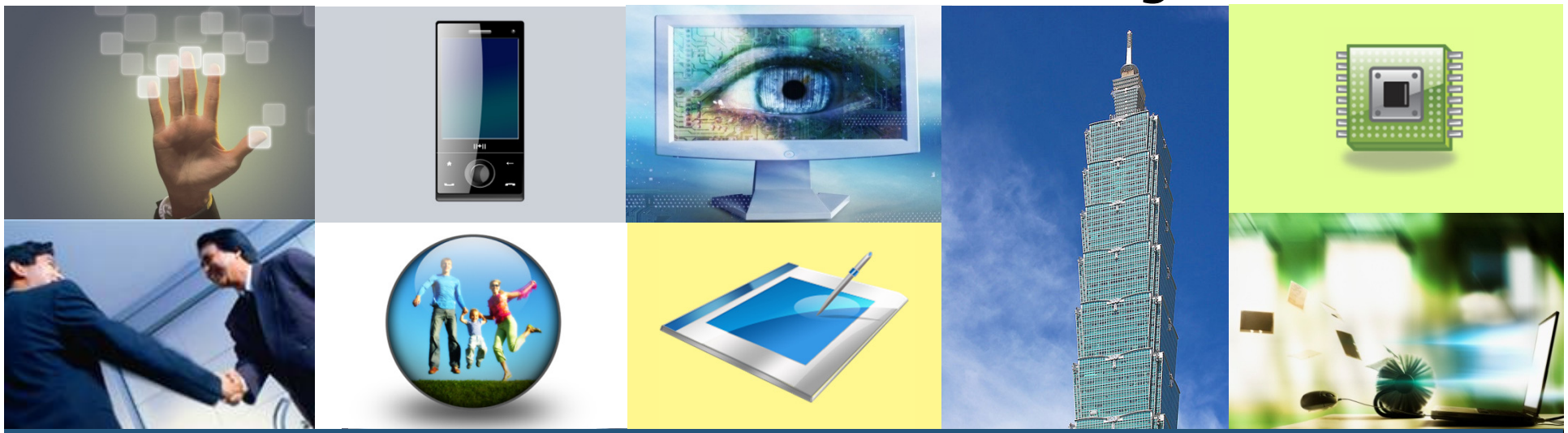
輕鬆上手Andes 開發板—
ADP-XC7KFF676 使用介紹

Driving Innovations



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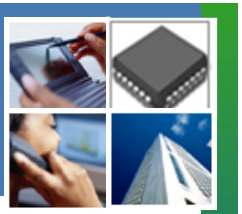
Agenda



- Product information
- Board introduction
- Program FPGA netlist and system program
- Quick boot up

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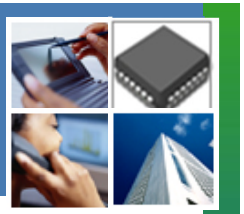
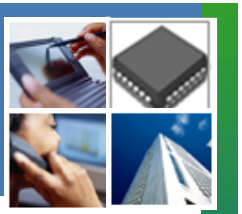
Product Information



- Product Name
  - ADP-XC7KFF676
- Release bitmap
  - Support all of Andes core and AG101,AE210 platform IP
  - CPU/AHB/APB clock rate: 30/30/15MHz (N7,N8)
    60/30/15 MHz(N9,N10,N12,N13)
    (N13 CPU clock up to 144MHz)

Product Document



ITEM	Document Number	Revision
Release Note	RN-086	V1.0
Product Brief	RN-081	V1.0
Production Guide	PB-082	V1.0
User Manual	UM-098	V1.0
Quick Start Guide	UM-099	V1.0

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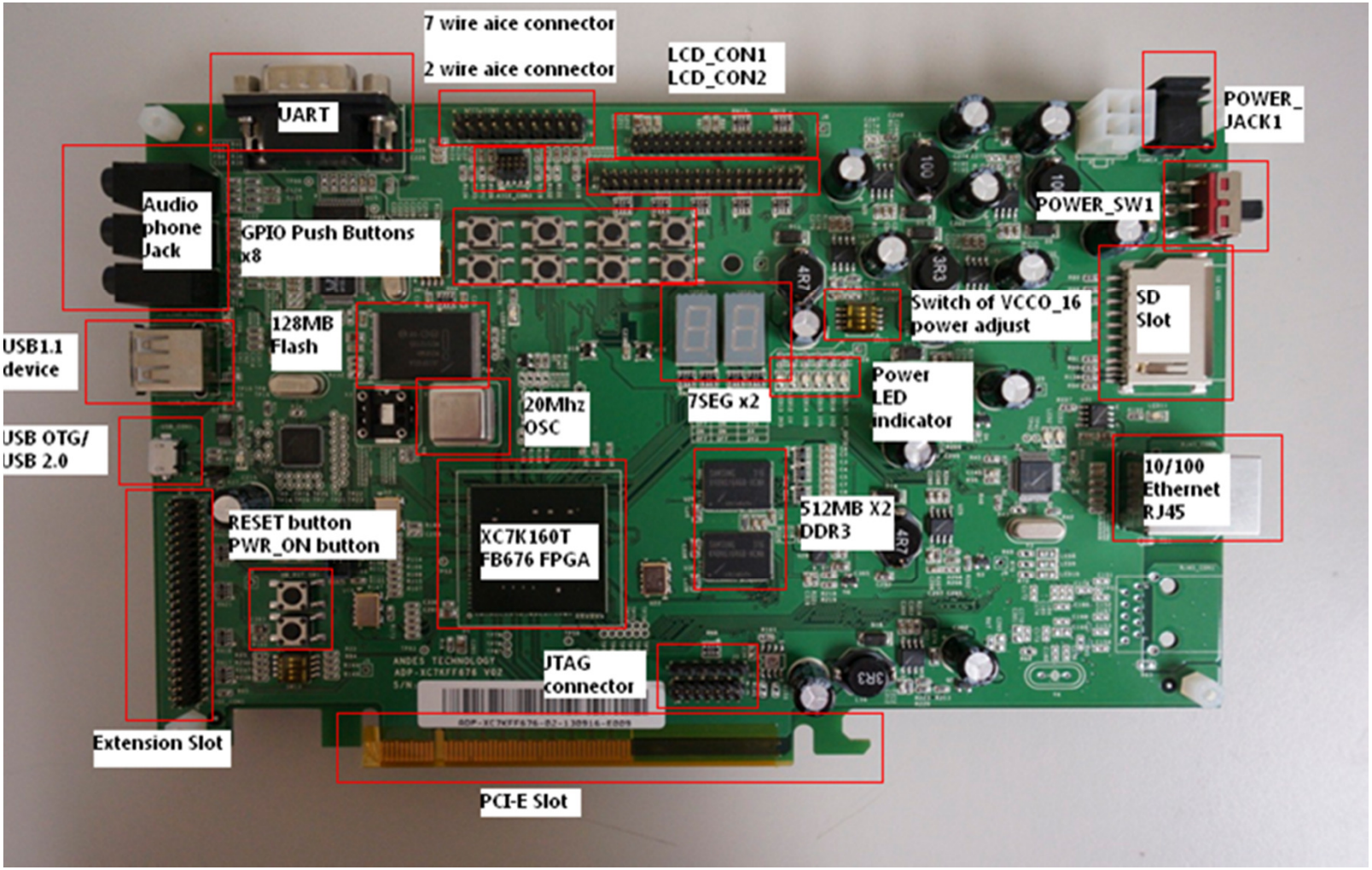
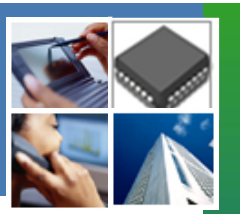
Function and location

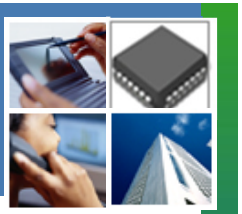


Board of the Feature



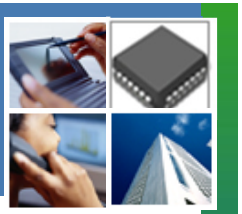
- Xilinx Kintex-7 FPGA XC7K160T (L/C :162240, Package:676 speed grade :-1M)
- 1 GB on-board DDR3 SDRAM (800MHz)
- 128MB on-board NOR flash; 64MB for FPGA configuration, and 64MB for system storage
- 10/100 Ethernet compatible RJ45 (MII interface)
- DB9 UART port (Null modem cable)
- SD memory card slot
- IDE/GPIOs connector for extension

Board of the Feature



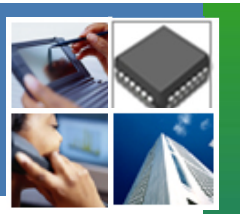
- Support 2W/5W/7W JTAG pins on AICE ports
- 8 user defined push buttons
- 3”/7” LCD module connector with RGB interface
- MIC-in, Line-in, and Line-out with AC97 audio codec
- Two 7-segment LED displays
- SPI Flash ROM (16Mb)
- I2C EEPROM (128Kb)

Optional device



- USB 2.0 OTG port
- USB 1.1 device port
- 10/100/1000 Ethernet
- PCI-E x8 I/F

Leopard vs. Orca



	ADP-XC5FF676 Leopard	ADP-XC7KFF676 Orca
FPAG Capacity/ Logic Cell	110K	160K
FPGA PROM	4MB	64MB
DRAM Size/ Speed	128MB/SDRAM 40MHz	1GB/DDR3 800M
On-board Flash	32MB	64MB
Board to Board Connection	AHB	PCI-E
AICE Port	1/Fixed Voltage (3.3V)	1/Fixed Voltage+ 1/Multi-Voltage (3.3V, 2.5V, 1.8V)
Giga Ethernet	No	Yes
USB 2.0 OTG	No	Yes
USB 1.1 Device	No	Yes
Push Buttons	5	8
Adaptive	5V/3A, 2.0mm	12V/5A, 1.7mm

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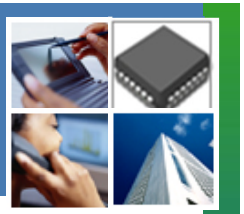
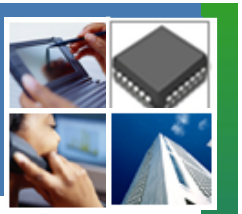
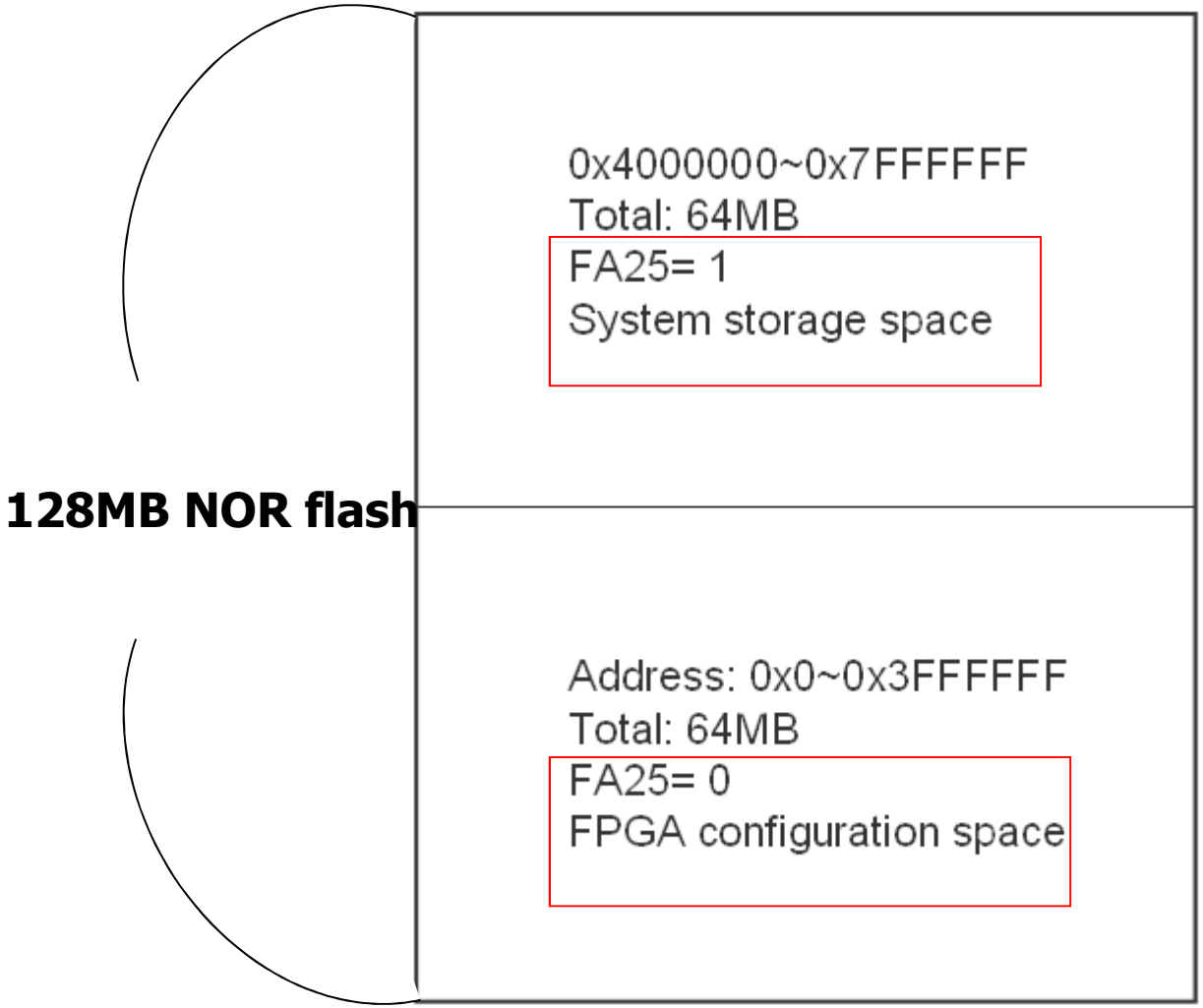
Xilinx Configuration File Format



File Extension	Xilinx Software Tool	Description
BIT	BitGen (generated by default)	BIT file is a raw storage of the programming bits for the FPGA and can be loaded directly to the FPGA via JTAG using iMPACT.
MCS	PROMGen or iMPACT	.MCS file is what you load into a PROM (non-volatile memory) which stores the programming information.
BIN	BitGen (generated if **-g binary:yes** option is set) or PROMGen	Binary configuration data file with no header information. Can be used for custom configuration solutions (for example, microprocessors), or in some cases to program third-party PROMs.

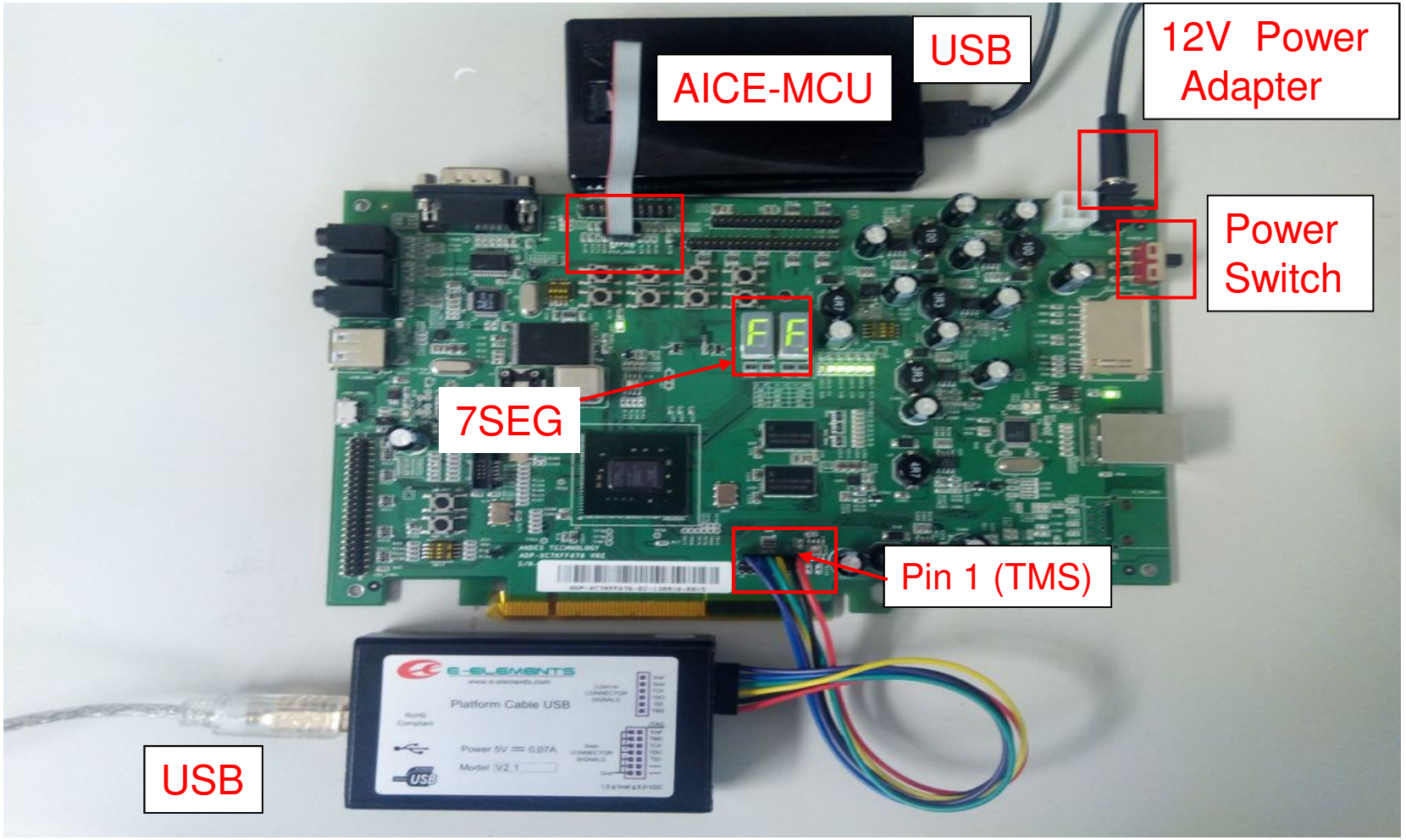
PFLASH 128MB



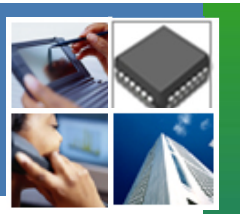


Programing FPGA by Andes Burner

Programing FPGA by Andes Burner

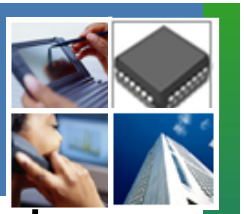


Programming Tools



- Xilinx iMPACT 14.5 以上版本
- 安裝 AndeSight™ STD, AndeSight™ MCU, or BSP
- ADP-XC7KFF676 programming package
  - orca.bat (script file)
  - orca.cmd (script file for config file)
  - isp_ag101p.exe (burner tool)
  - burn_fpga.encrypt.bit (FPGA config file)
  - ag101_chip.bin (FPGA netlist file)
- Xilinx Platform Cable USB
- Andes AICE MCU

Burn BIN file to PROM



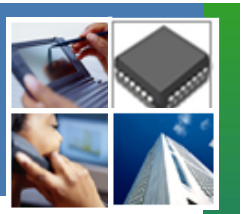
1. Copy all files in ADP-XC7KFF676 programming package to \Xilinx\14.5\LabTools.

2. 連接 Xilinx download Cable to ADP-XC7KFF676 and host PC.

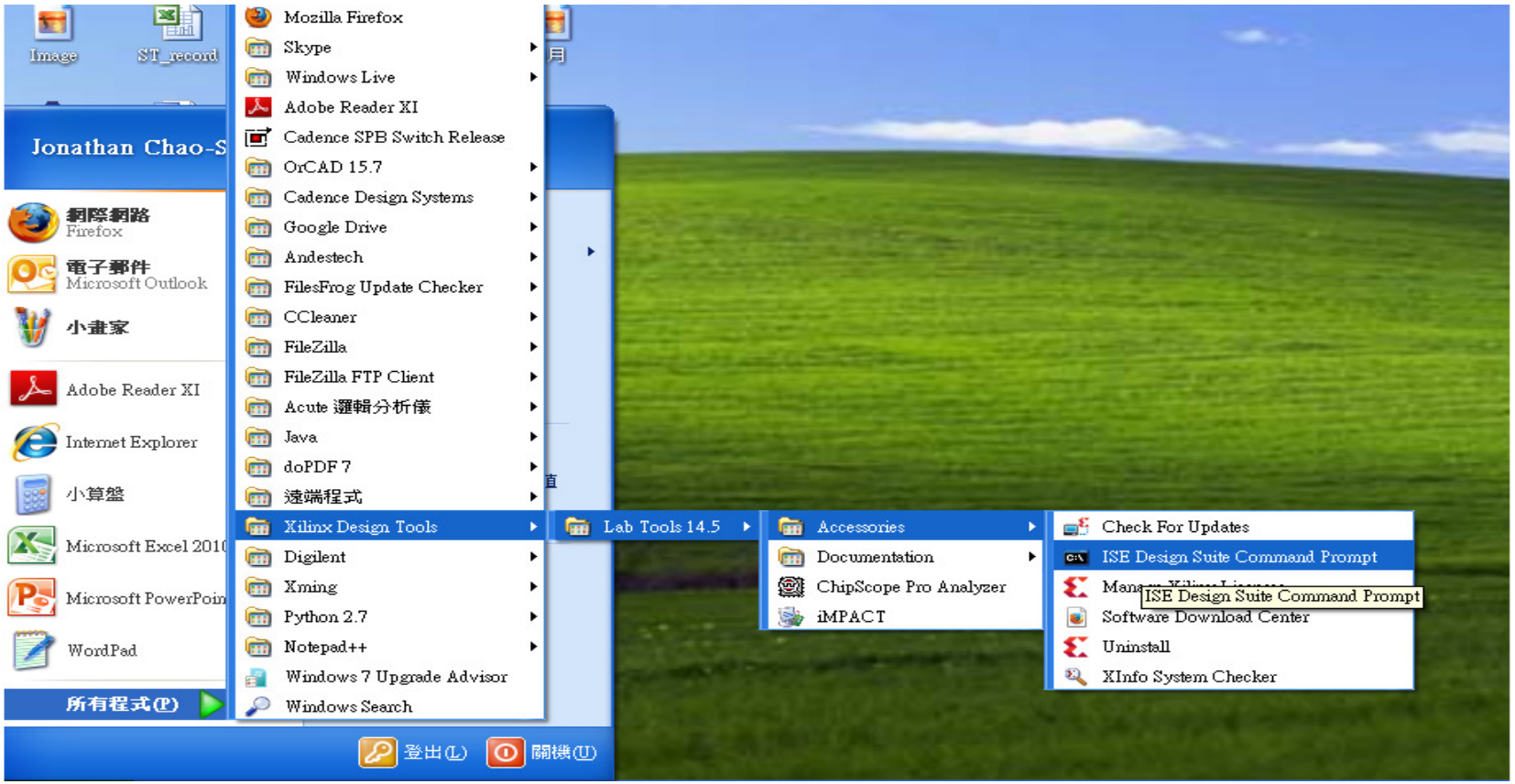
3. 開啟ADP-XC7KFF676 的電源並按"PWR_SW1"開關. 電源 LEDs (LED12 to LED17) 需要亮起來.

4. 確認Xilinx cable 上的綠燈有亮.

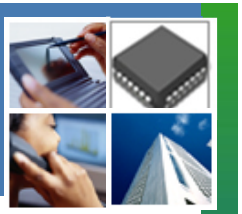
Burn BIN file to PROM



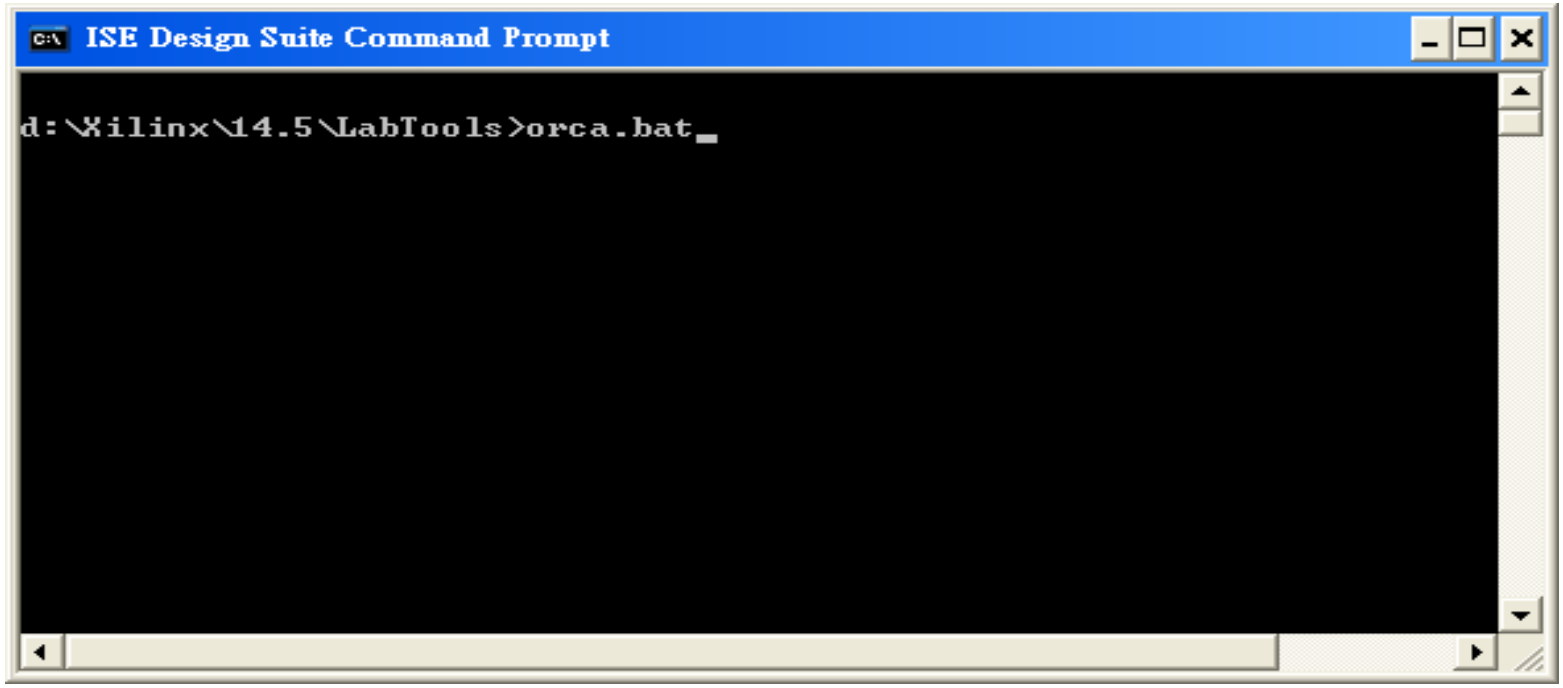
5. 開啟 “ISE Design Suit Command Prompt “from Start →Program → Xilinx Design Tools/Lab Tools 14.5→Accessories.



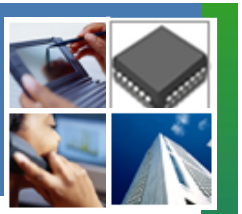
Burn BIN file to PROM



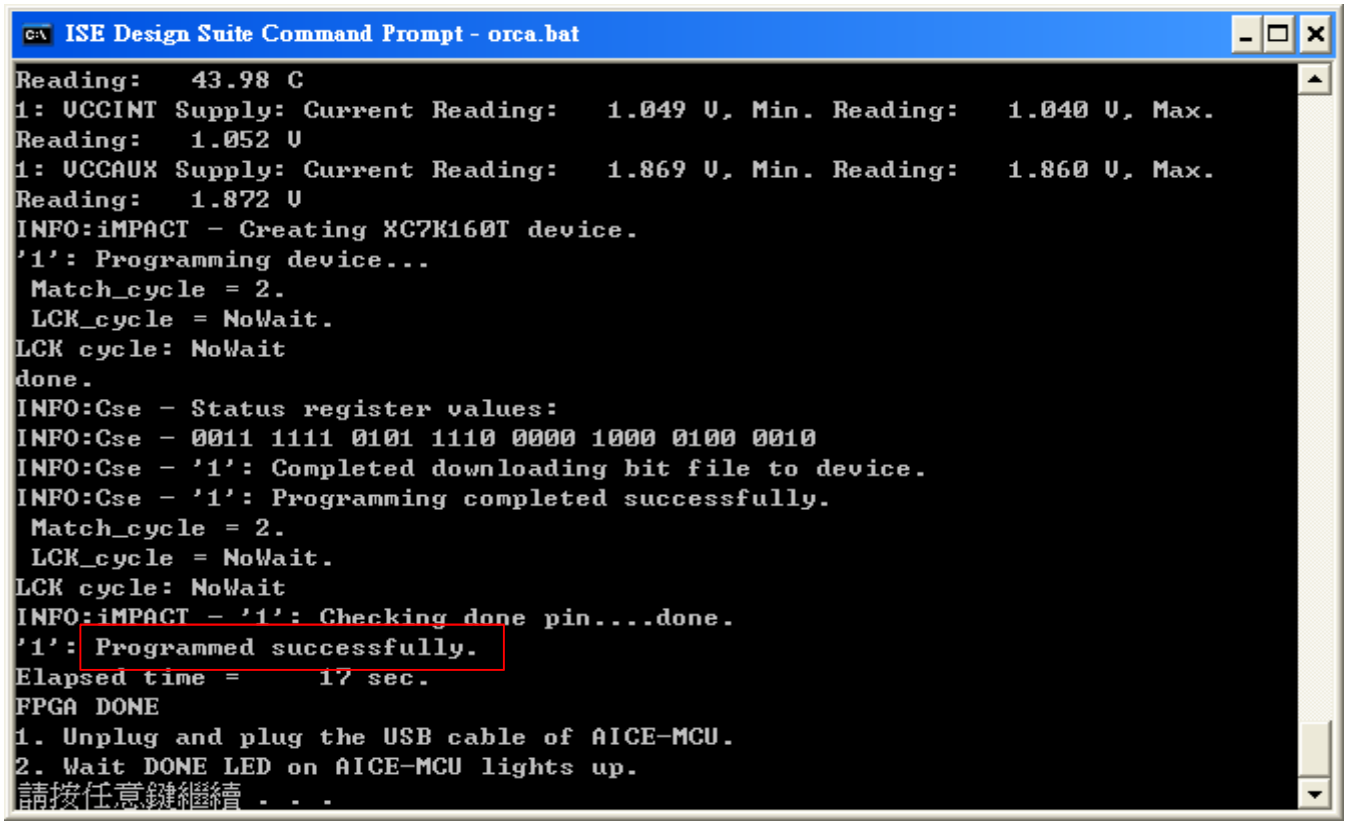
6. 執行Orca.bat



Burn BIN file to PROM

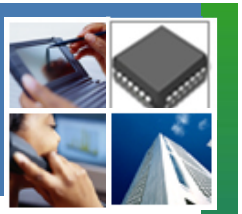


7.當出現下圖畫面,表示FPGA config file 燒錄成功.



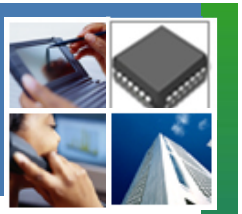
8. 連接 AICE-MCU to your host PC.

Burn BIN file to PROM

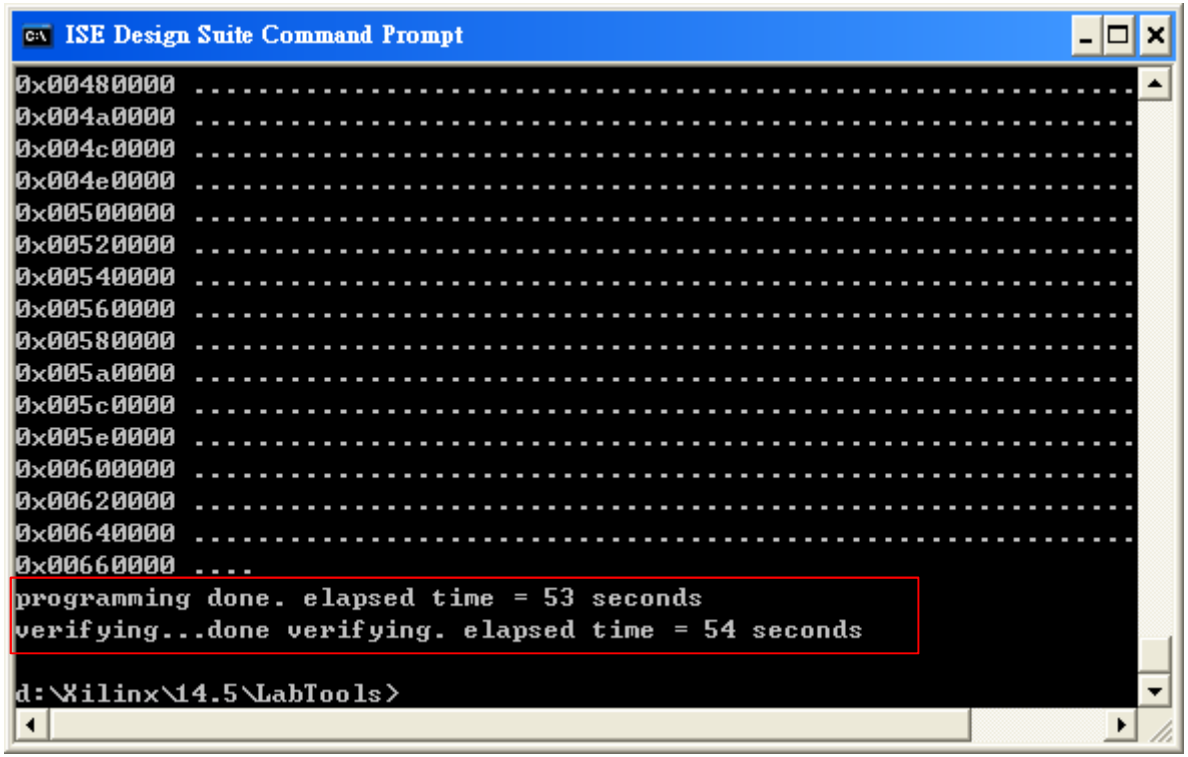


9. 等待Done LED亮起.

Burn BIN file to PROM

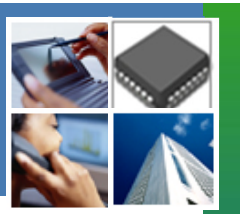


10. 按任意鍵並且繼續.
11. FPGA netlist file燒錄成功後顯示如下圖畫面.

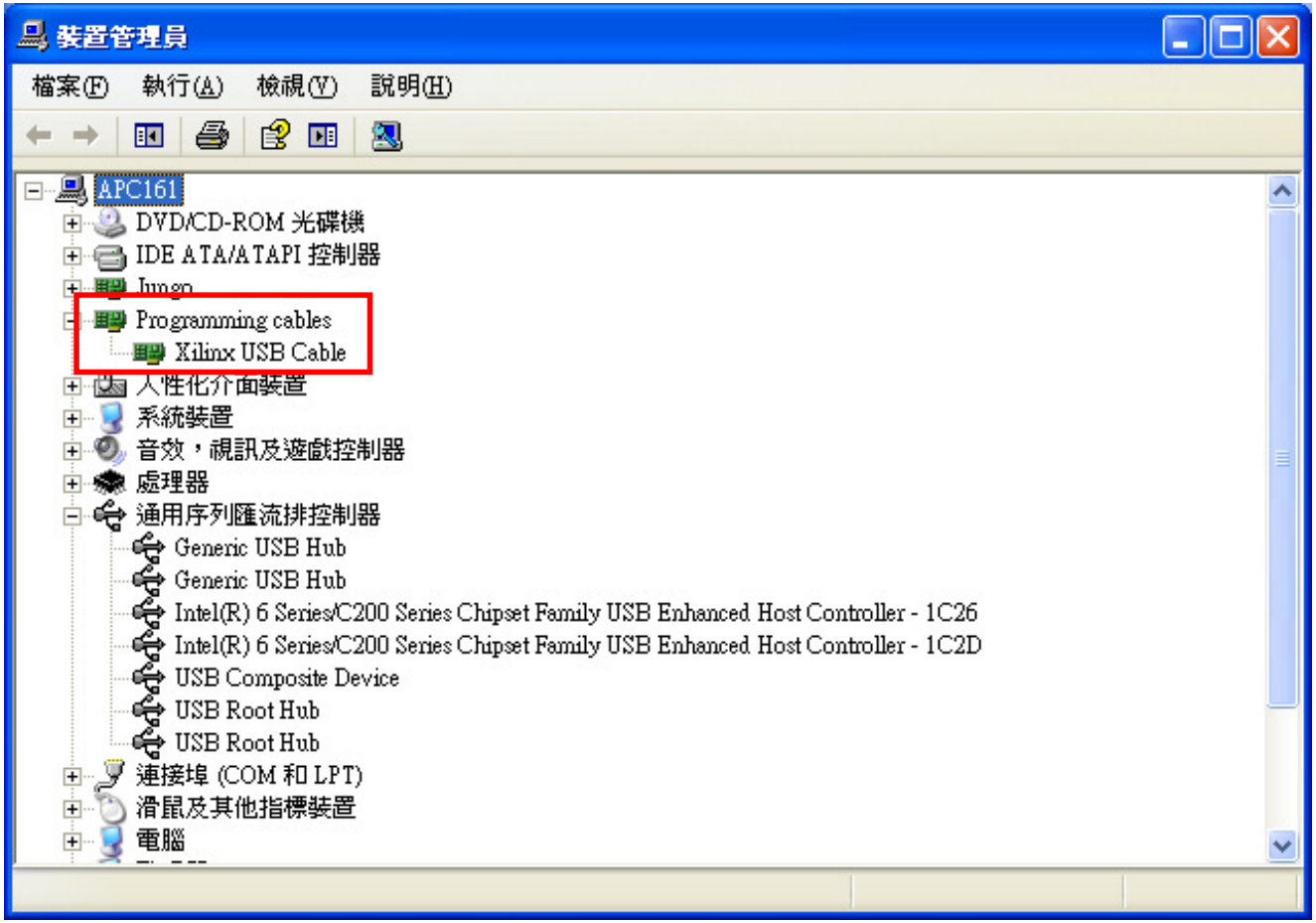


Programing FPGA by Xilinx Burner

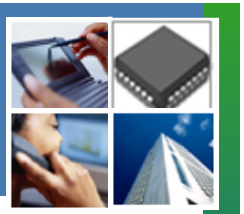
Programing FPGA by iMPACT



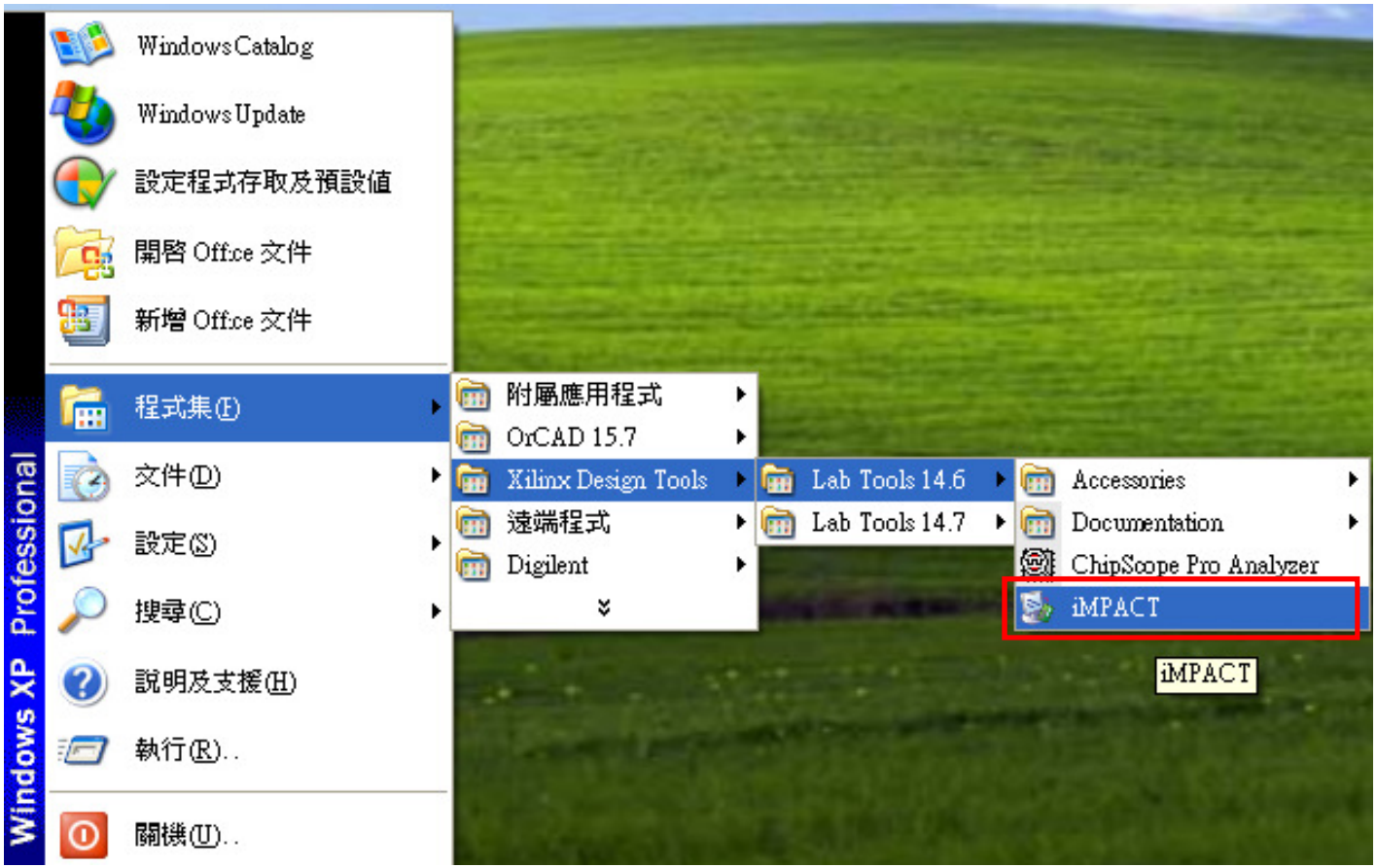
1. Check控制台/系統/硬體/裝置管理員



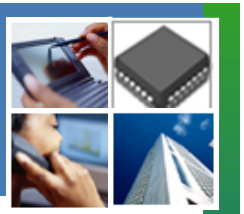
Programing FPGA by iMPACT



1.程式集開啟Xilinx Design Tools → Lab Tools14.6 → iMPACT

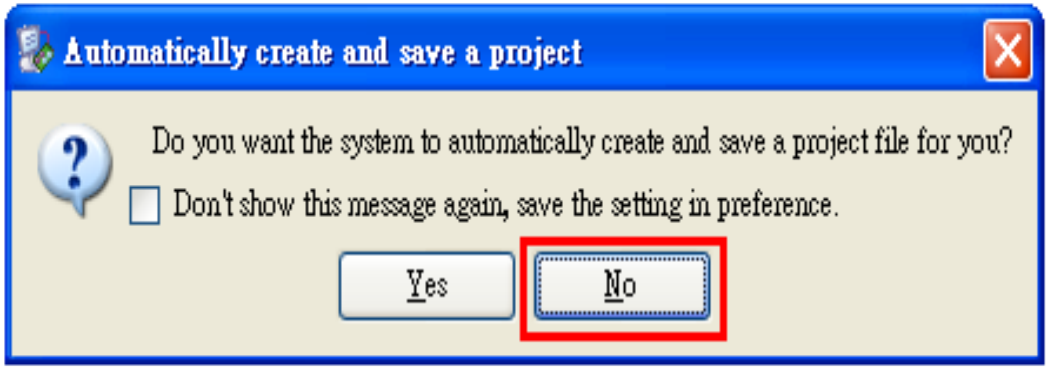


Burn MCS file to PROM

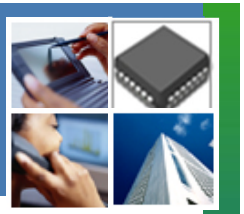


2.Automatic Project File Load 選擇 “No”

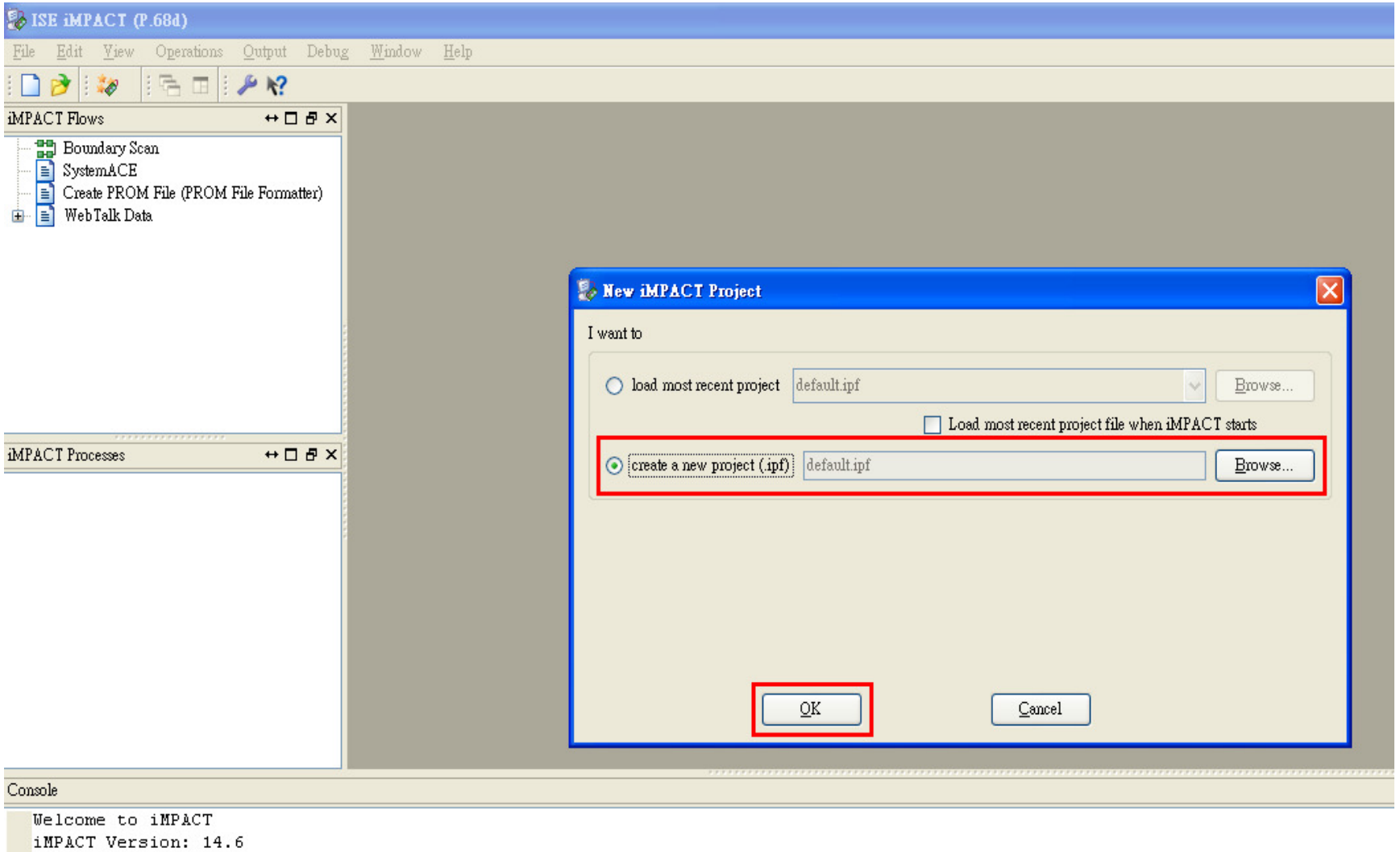
3.Automatically create and save a project選擇 “No”



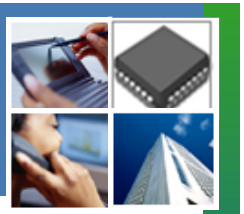
Burn MCS file to PROM



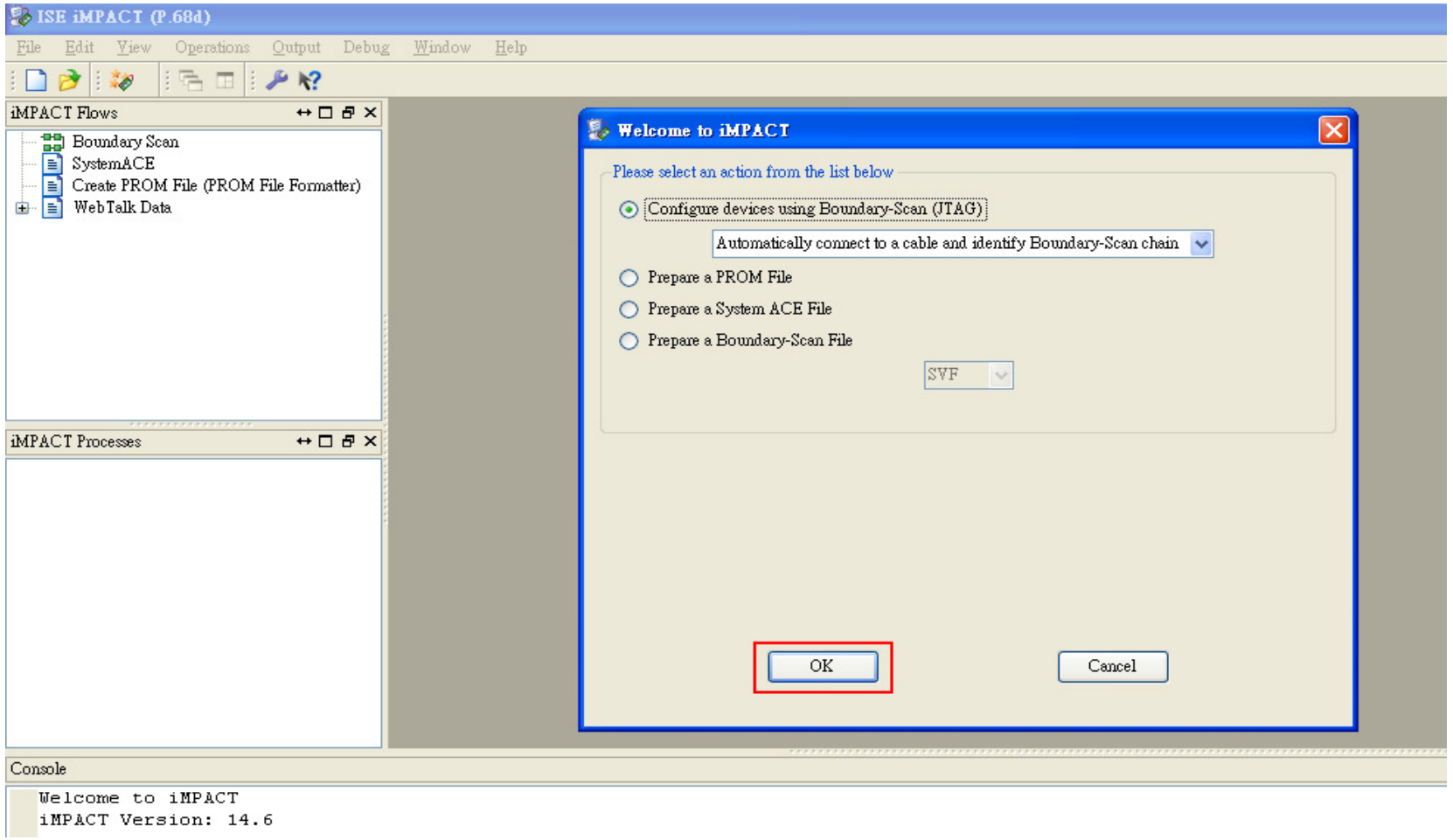
4.選擇”create new project (.ipf)” 後,按 ”OK”.



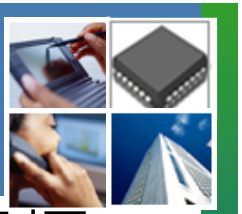
Burn MCS file to PROM



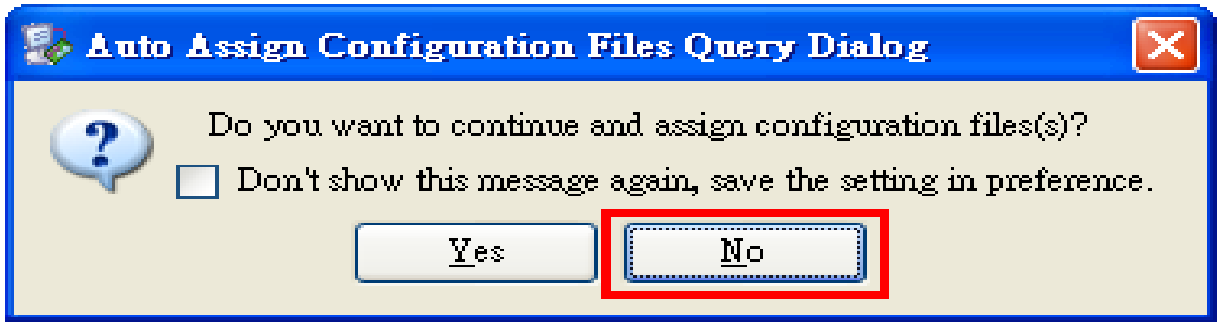
5.選擇”Configure devices using Boundary-Scan (JTAG)” 按 “OK”



Burn MCS file to PROM

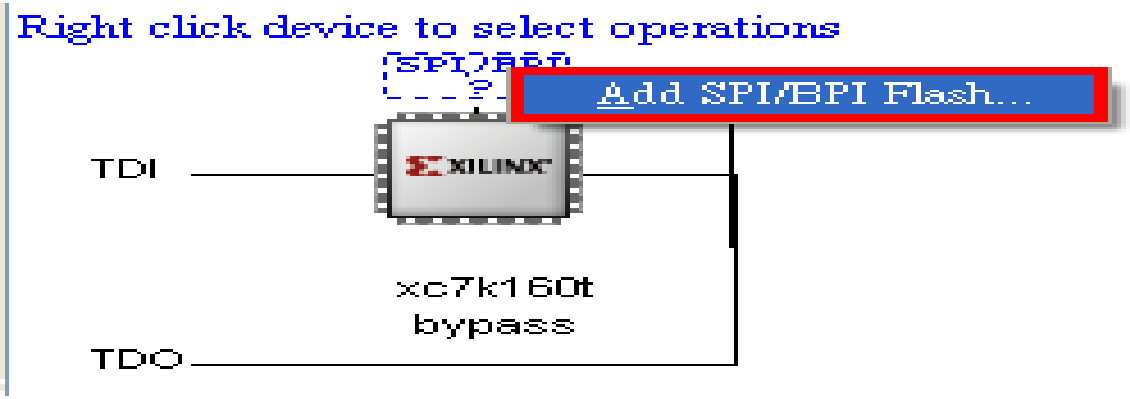


- 6.Auto Assign Configuration Files Query Dialog選擇 “No”



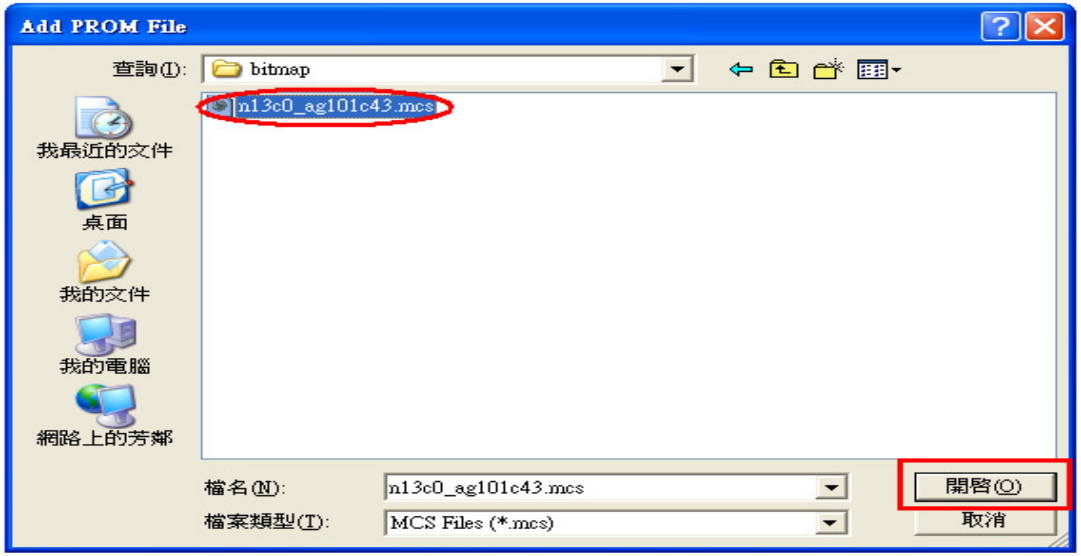
Burn MCS file to PROM

7.Right click device to select operations /Add SPI/BPI Flash

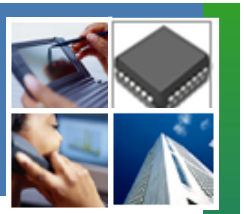


8.Add PROM File → n13c0_ag101c43.mcs

選擇＂ 開啟"



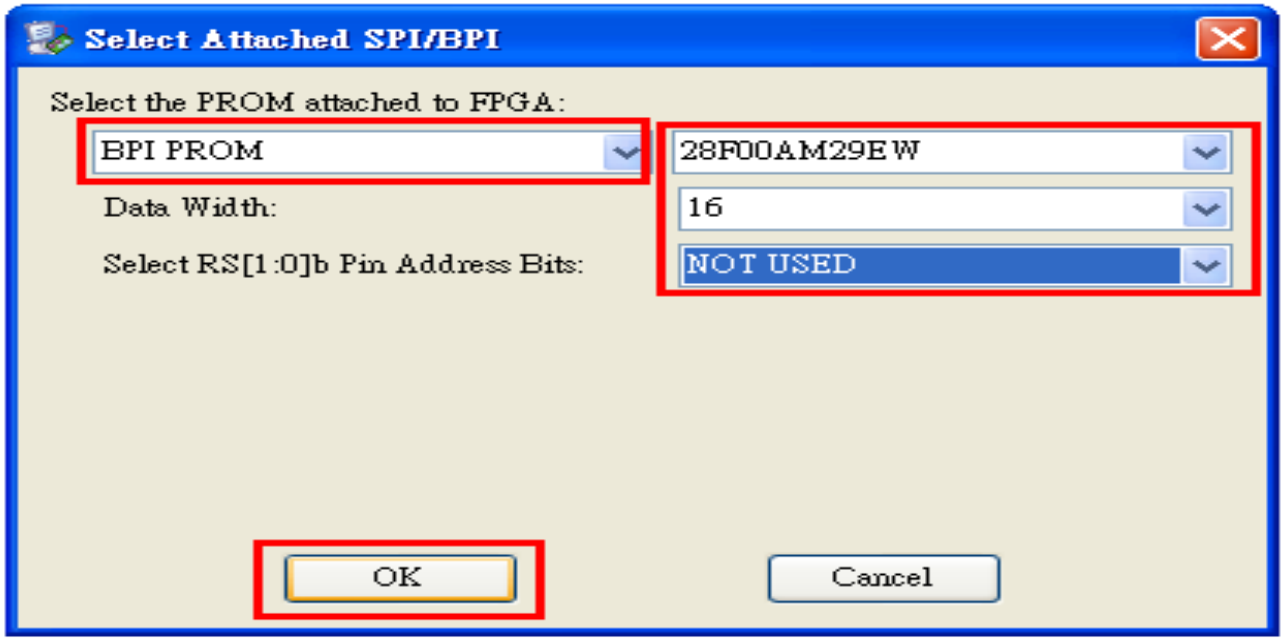
Burn MCS file to PROM



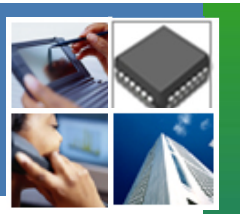
9.選擇 PROM參數設定

- BPI PROM
- 28F00AM29EW
- Data Width : 16
- Select RS[1:0]b Pin Address Bits : NOT USED

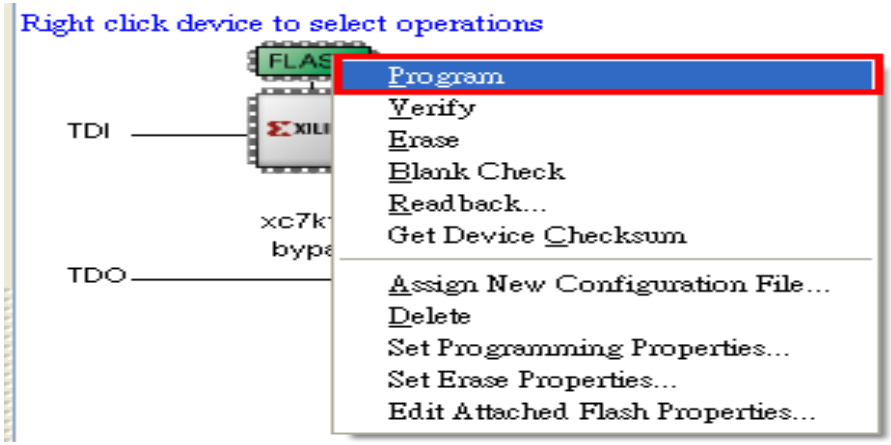
設定完成後選擇 “OK”



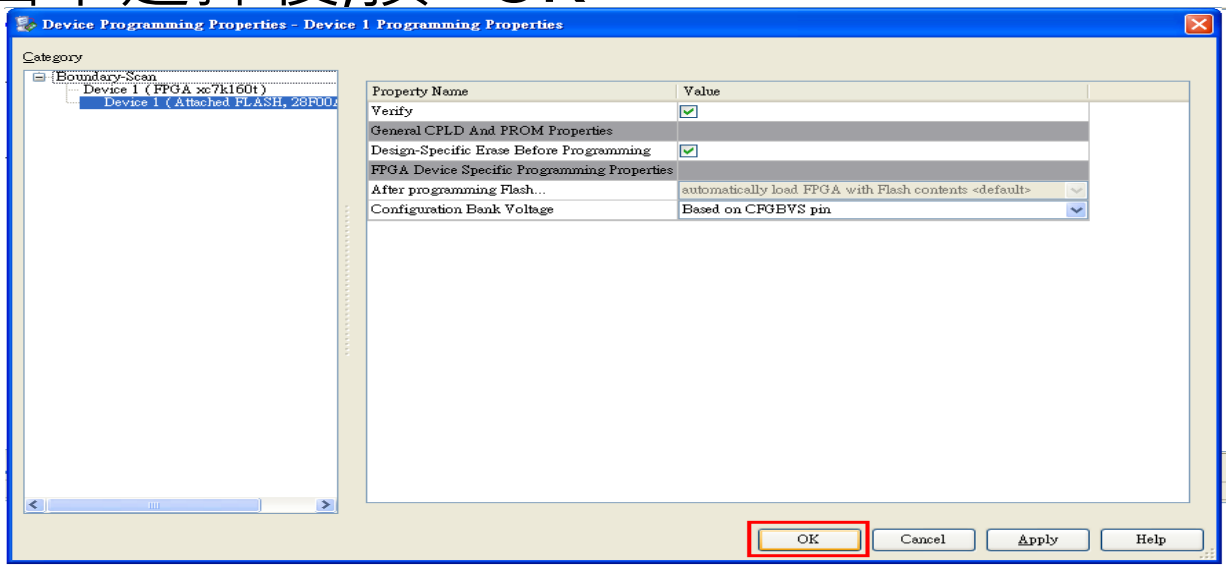
Burn MCS file to PROM



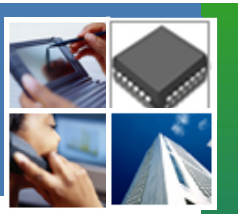
10.選擇Flash元件後,按滑鼠右鍵,選擇”Program”



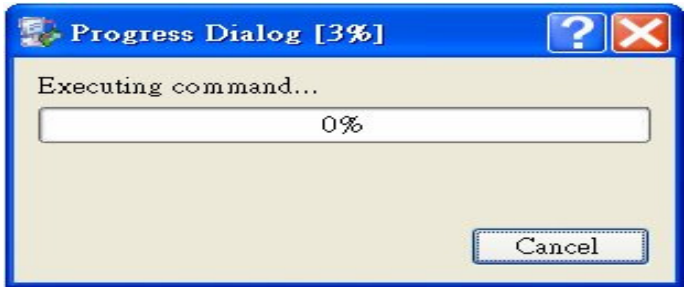
11.依照圖示選擇後,按 “OK”



Burn MCS file to PROM



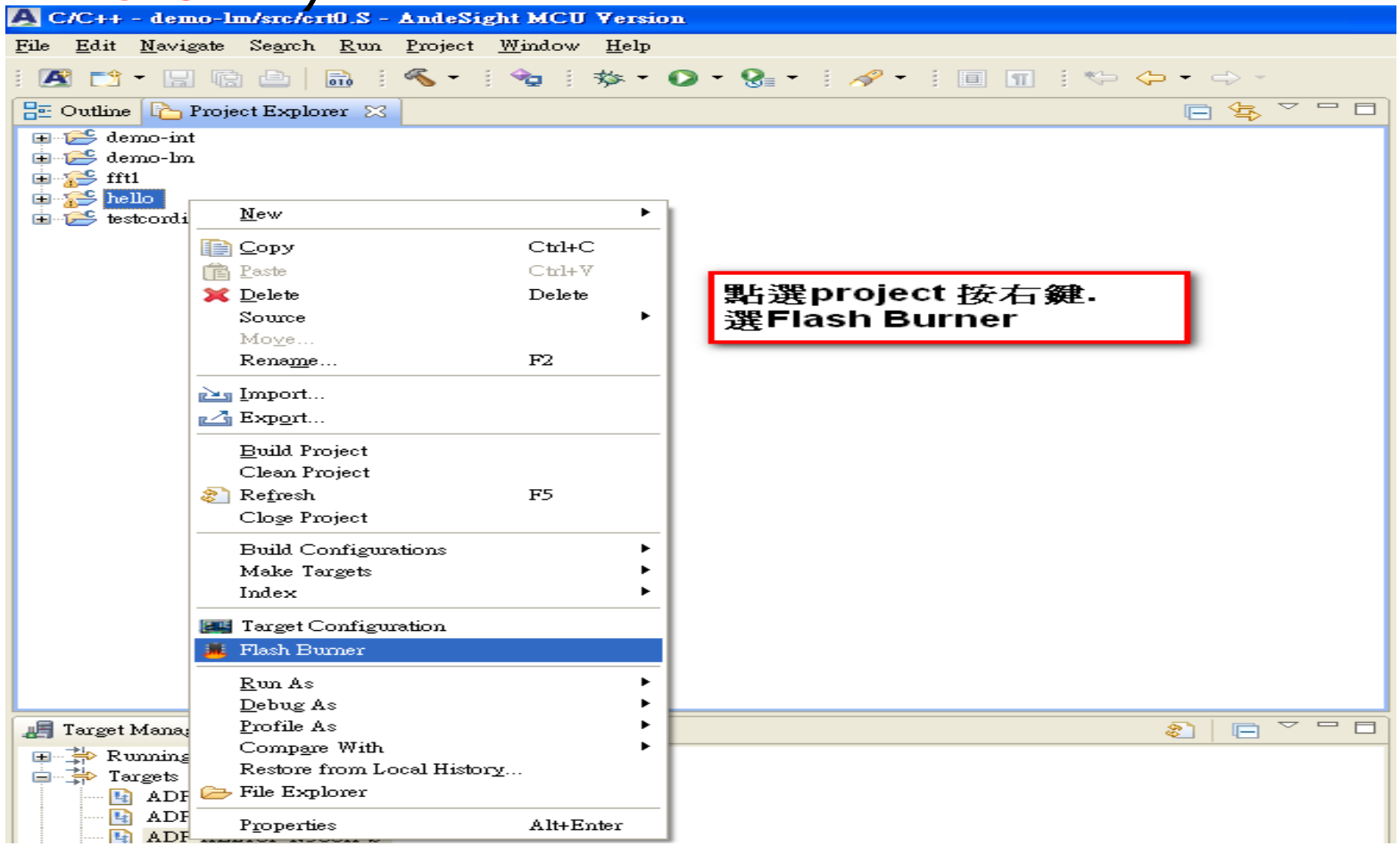
12.開始燒錄



13.燒錄完成

Burn System program by AndeSight

開啟 Flash Burner 在 AndeSight.(Andesight需Patch BSP3.2.1)

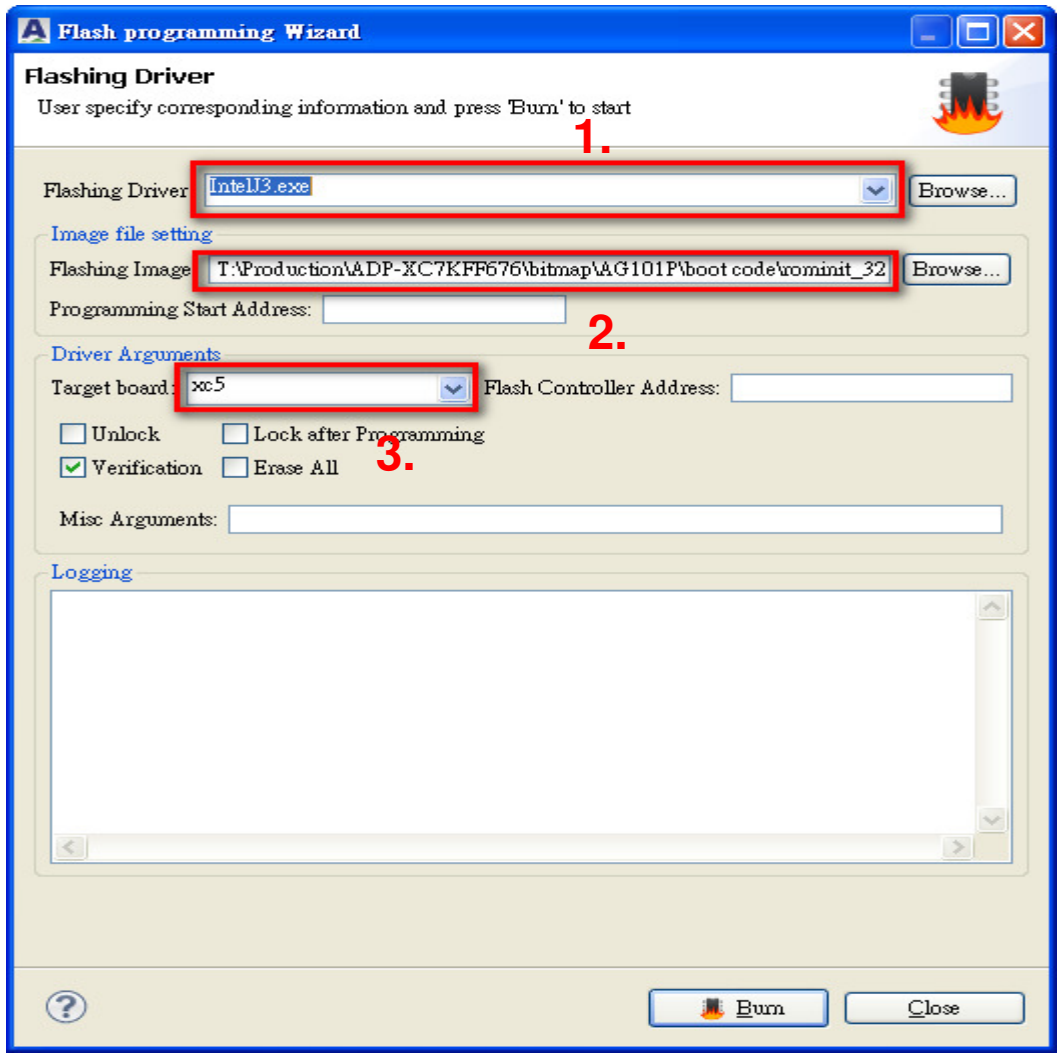


Burn System program by AndeSight

Flash programming 設定項目.

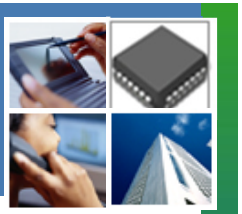
1.選擇 burner tool
2.選擇 flash image file
3.選擇 Target board

- AG101P_4G
  - Burner tool: IntelJ3
  - Target board: XC5
- AG101P_16M
  - Burner tool: IntelJ3
  - Target board:ag101p_16mb
- AE210
  - Burner tool: SPI
  - Target board: None



- Product information
- Board introduction
- Program FPGA netlist and system program
- Quick boot up

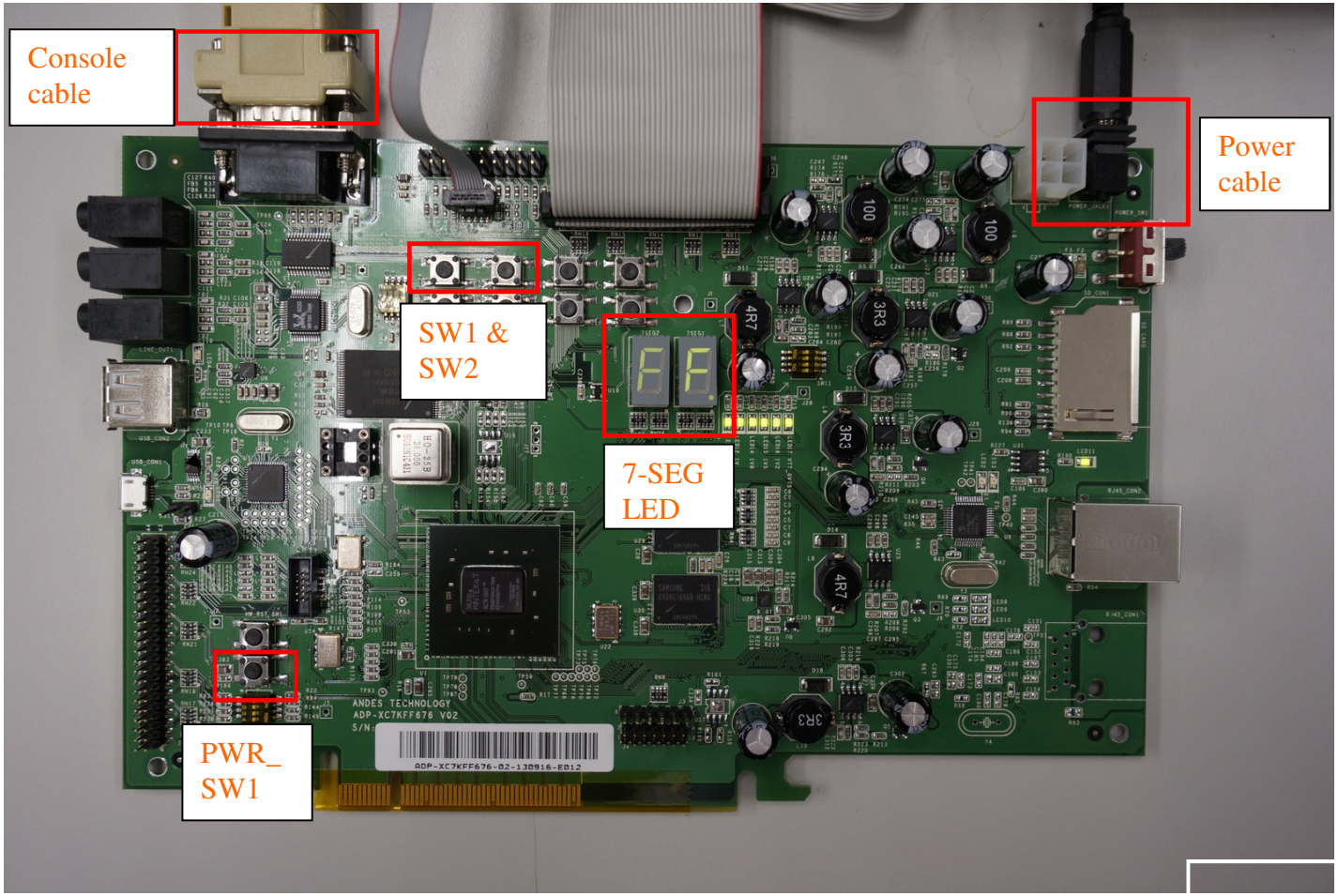
Quick Boot Up



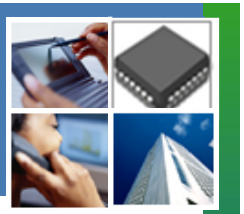
電腦超級終端機設定:

- Baud Rate: 38400
- Data: 8 bits
- Parity: none
- Stop: 1 bit
- Flow control: none

Quick Boot Up (cont'd)



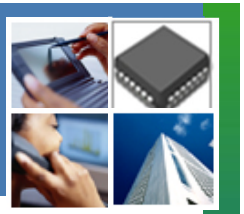
Quick Boot Up



1. 按System_Enable 按鈕 (PWR_SW1), 七段顯示器LEDs 顯示 “99”. 並且console 會顯示下面的畫面:

```
Bank 1: size:0x4000000
Bank 2: size:0x4000000
cpu id  : d    revision: 1.0
Check SD Card
SD Card is not Exist on Card Slot.

Please press a GPIO Button for booting:
_____
GPIO1 (SW1): Run Setup & Diagnosis
GPIO2 (SW2): Burnin Test
```

Quick Boot Up

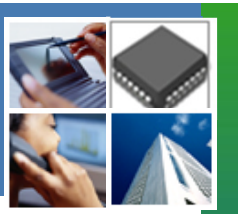


2. 按GPIO1 按鈕 (SW1), 系統將開啟Diagnosis program. 七段顯示器將顯示“b7” 並且console 顯示Diagnosis Menu如下:

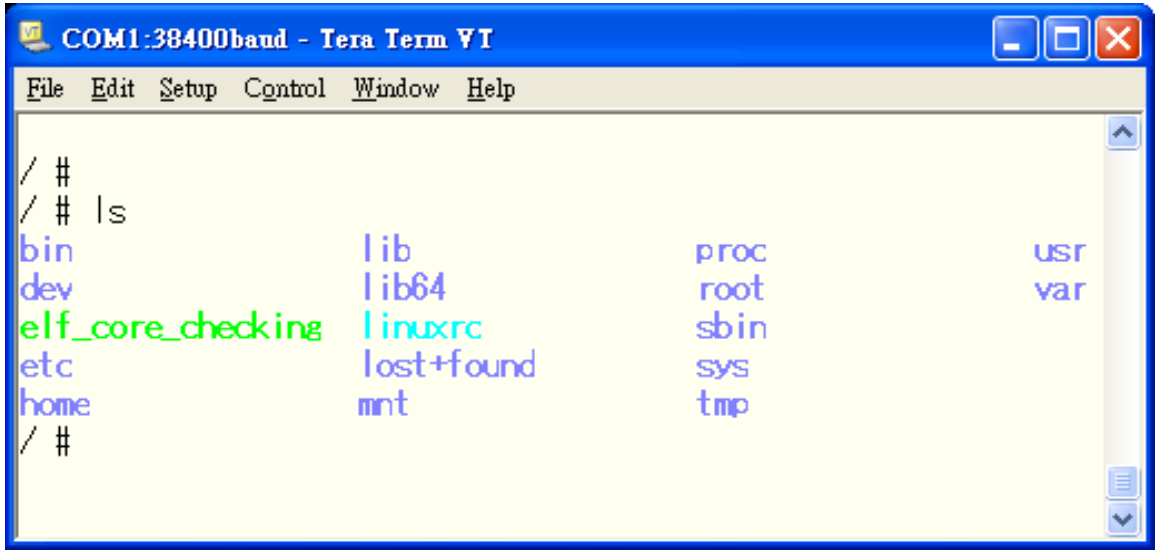
```
----------------------------------------------------------------------------
Andes Development Platform Diagnosis Menu for ADR32 environment, Built@Jul 12 2013 (v1.81)
This is Engineering Board ([PMU_BASE+0x8c]=0x20130710)
----------------------------------------------------------------------------
( 1) SDRAM Test       ( 2) Timer Test       ( 3) DMA Test
( 5) UART Loopback Test ( 6) UART DMA Test     ( 9) Watchdog Test
(10) Watchdog Reset Test(11) MAC Loopback Test  (12) Flash Test
(14) SDRAM(bnk1,2)    (17) AC97 Test        (18) AC97 DMA Test
(21) LCD Test         (22) LCD Menu         (23) Query RTC
(24) RTC Alarm Test   (25) GPIO Test        (35) SD_Test
(38) USB 1.1 Test     (39) USB 2.2 Test     (40) USB-OTG Test
(41) USB-Host Test    (53) Enable Cache     (54) Disable Cache
(55) CLI              (67) Set Console's UART (75) Burn-in Test
(95) Production       (96) NDS BOOT         (97) CopyImageFromCard
(98) Linux test from SD card(99) Setup

Command>>
```

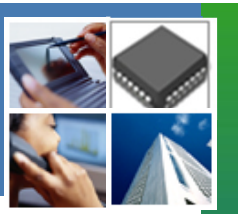
3. Then, the system is ready to use.

Boot Up to Linux



- In Diagnosis Menu
- Command>>55
- CLI>go 0x80400000 <Enter
- Into Linux command line





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Thank You