# PRINCO DDR3-1800 user guide and testing for GA-X58A-UD3R Motherboard

# CPU i7-950 3.07G



# Part I: Standard test

It's the easiest way to enjoy overclock benefit by using PRINCO DDR3-1800 DIMM board

How to use?

- 0. Clear BIOS to mainboard initial setting
- 1. Enter BIOS setup and [MB Intelligent Tweaker(M.I.T.)] menu

<ul> <li>Advanced BIOS Features</li> <li>Integrated Peripherals</li> <li>Power Management Setup</li> <li>PC Health Status</li> </ul>	Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
<ul> <li>MB Intelligent Tweaker(M.I.</li> <li>Standard CMOS Features</li> </ul>	Load Fail-Safe Defaults Load Optimized Defaults

### 2. Enter [Advance Memory Setting] item

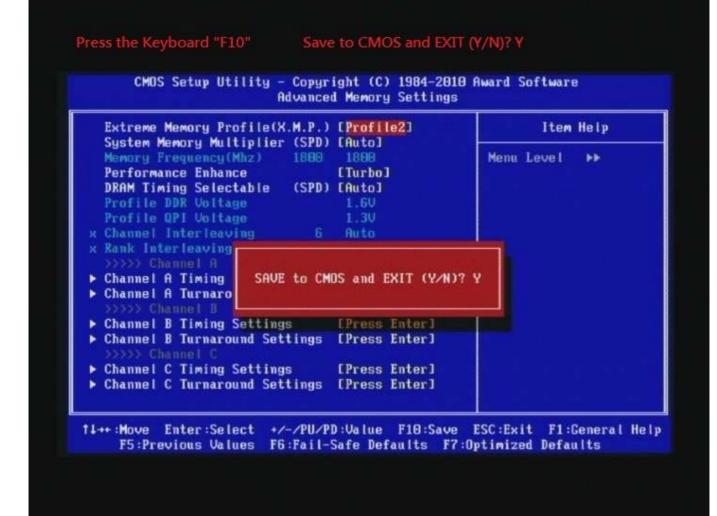
#### Select "Advanced Memory Settings"

► M.I.T Current Status	[Press Enter]	Item Help
<ul> <li>Advanced Frequency Settings</li> <li>Advanced Memory Settings</li> <li>Advanced Voltage Settings</li> </ul>	[Press Enter] [Press Enter] [Press Enter]	Menu Level 🕨
<ul> <li>Miscellaneous Settings</li> </ul>	[Press Enter]	Configure DRAM Features
BIOS Version	FB	
BCLK	159.05 MHz	
CPU Frequency	3022.15 MHz	
Memory Frequency	1908.70 MHz	
Total Memory Size	6144 MB	
CPU Temperature	59.0 °C	
Vcore	1.312 V	
DRAM Voltage	1.584 V	

3. Enter [Extreme Memory Profile(X.M.P.) ] item and choose [Profile 2] option , *BIOS will load X.M.P parameter in SPD on DIMM board* , which are performance optimized for PRINCO *DDR3-1800 DIMM board* 

CMUS Setup Uti	lity - Copyright (C) 1984-2010 A Advanced Memory Settings	iwara sortware	
	file(X.M.P.) [Disabled] Step 1	Item H	le l p
Memory Frequency(M Performance Enhance	iplier (SPD) LAuto] hz) 1866 1866 e [Turbo]	Menu Level	++
DRAM Timing Selec Profile DDR Volta	Extreme Memory Profile(X.M.P.)		
	Disabled [ ] Profile1 [ ] Profile2 [=] Step 2		
Channel A Timing Channel A Turnaro	Step 2		
Channel B Timing Channel B Turnaro			
Channel C Timing Channel C Turnaro	ti:Move ENTER:Accept ESC:Abort		

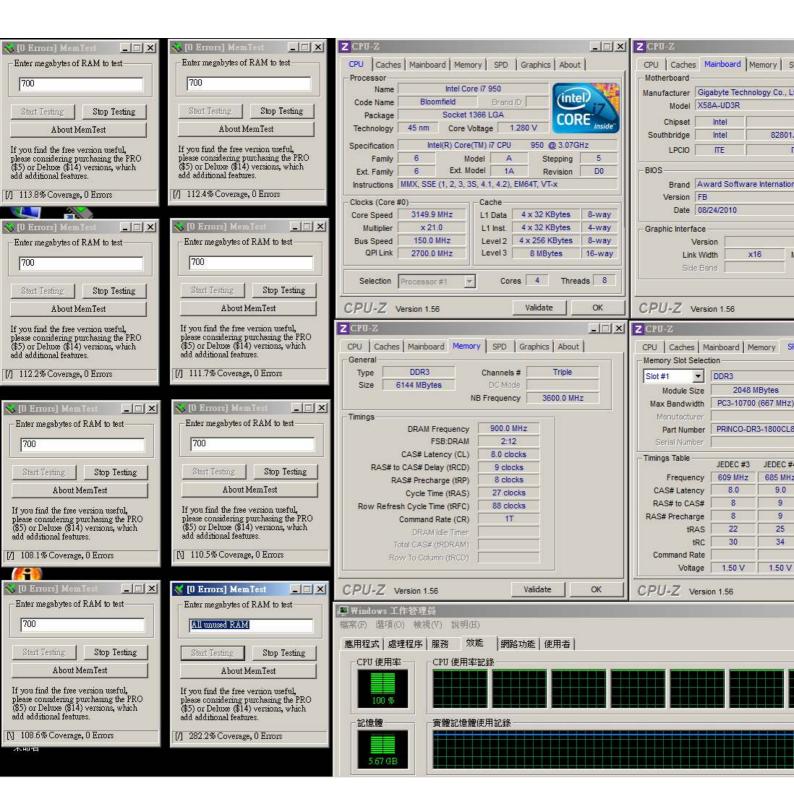
#### 4. Save BIOS changes [F10] and exit



#### Test result?

In order to demonstrate the performance and stability of PRINCO DDR3-1800 DIMM board, We use the strictest stress testing, that is, multi-core MemTest in window 7.

(Data rate : 900.0\*2=1800, timing : 8, 9, 8, 27, multi-core test => pass!)



# Advanced Overclocking and Testing

# Part II: Heavy test

If you want to know the potential of PRINCO DDR3-1800? Following are step-by-step howto.

How to use?

- 0. Clear BIOS to mainboard initial setting
- 1. Enter BIOS setup and [MB Intelligent Tweaker(M.I.T.)] menu

► MB Intelligent Tweaker(M	.I.T.) Load Fail-Safe Defaults
▶ Standard CMOS Features	Load Optimized Defaults
▶ Advanced BIOS Features	Set Supervisor Password
► Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
	14++: Select Item
Char	nge CPU's Clock & Voltage

### 2. Enter [Advance Frequency Setting] item

#### Select "Advanced Frequency Settings"

▶ M.I.T Current Status	[Press Enter]	Item Help
<ul> <li>Advanced Frequency Settings</li> <li>Advanced Memory Settings</li> <li>Advanced Voltage Settings</li> <li>Miscellaneous Settings</li> </ul>	[Press Enter]	Menu Level ►
BIOS Version BCLK	FB 133.28 MHz	
CPU Frequency Memory Frequency	3198.51 MHz 1599.38 MHz	
Total Memory Size CPU Temperature	6144 MB 52.0 °C	
Vcore DRAM Voltage	1.184 V 1.584 V	
Vcore DRAM Voltage 11++:Move Enter:Select +/-/P	1.184 V 1.584 V	SC:Exit F1:General Hel

3. Set [Base Clock(BCLK) Control] item to [Enabled] , Select [BLCK Frequency(Mhz)] item, and increase to higher Base clock rate (ex:136). Then set [System Memory Multiplier (SPD)] item to [14.0]. Don't forget setting [CPU Ratio Setting] item to suitable ratio [ex:22]

(In this case we only focus on memory over clocking, not CPU)



then return to previous to

[MB Intelligent Tweaker(M.I.T.)] menu

### 4. Enter [Advance Memory Setting] item

#### Select " Advanced Memory Settings "

▶ M.I.T Current Status	[Press Enter]	Item Help
<ul> <li>Advanced Frequency Settings</li> <li>Advanced Memory Settings</li> <li>Advanced Voltage Settings</li> <li>Miscellaneous Settings</li> </ul>	[Press Enter] [Press Enter] [Press Enter] [Press Enter]	Menu Level ► Configure DRAM Features
BIOS Version BCLK CPU Frequency Memory Frequency Total Memory Size	FB 146.04 MHz 3066.89 MHz 2044.50 MHz 6144 MB	
CPU Temperature	55.0 °C	
Vcore DRAM Voltage	1.168 V 1.584 V	
	U/PD:Value F10:Save 1 il-Safe Defaults F7:0)	ESC:Exit F1:General Help ptimized Defaults

# 5. Set [DRAM Timing Selectable (SPD)] item to [Quick]

# 6. Enter [Channel A Timing Settings] item

CMOS Setup Utility - Copyr Advance	ight (C) 1984-2010 d Memory Settings	Award Software
Extreme Memory Profile(X.M.P.) System Memory Multiplier (SPD)		Item Help
Memory Frequency(Mhz)1866Performance EnhanceDRAM Timing Selectable(SPD)Profile DDR VoltageProfile QPI VoltageChannel Interleaving6	1904 [Turbo] [Quick] 1.50 1.20 [Auto] [Auto] [Press Enter] [Press Enter] [Press Enter] [Press Enter] [Press Enter]	Menu Level 🄸

7. set [CAS Latency Time] item to [8]

set [tRCD] item to [9]

set [tRP] item to [8]

set [tRAS] item to [27]

#### set [DRAM Timing Mode] item to [1]

>>>>> Channel A Standa			<u>i.</u>	Item	Help
CAS Latency Time tRCD tRP	7 7 7 20	[ 8] [ 9] [ 8] [ 27]	Step 1	Menu Level	***
tRAS >>>>> Channel A Advanc	ed Timin	ng Contro			
tRC	27	[Auto]			
tRRD	4	[Auto]			
tWTR tWR	4 8	[Auto] [Auto]			
tWTP	19	[Auto]			
tWL	7	[Auto]			
tRFC	60	[Auto]			
tRTP	4	[Auto]			
tFAW	16	[Auto]			
Command Rate(CMD)	1		Step 2		
>>>> Channel A Misc T	Iming Co				
B2B CAS Delay		[Auto]			
Round Trip Latency	59	[Auto]			

then return to previous to

[MB Intelligent Tweaker(M.I.T.)] menu

## 8. Enter [Advance Voltage Setting] item

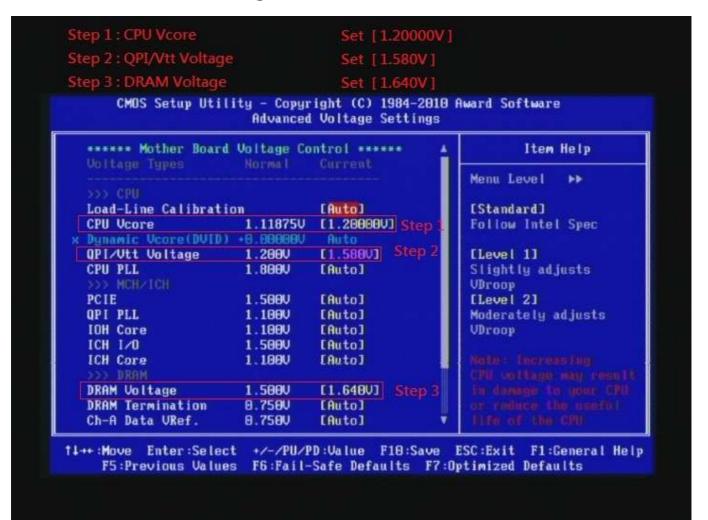
#### Select "Advanced Voltage Settings "

▶ M.I.T Current Status	[Press Enter]	Item Help
<ul> <li>Advanced Frequency Settings</li> <li>Advanced Memory Settings</li> </ul>	[Press Enter] [Press Enter]	Menu Level 🕨
► Advanced Voltage Settings		
Miscellaneous Settings		
BIOS Version BCLK	FB 146.05 MHz	
CPU Frequency	3066.88 MHz	
Memory Frequency	2044.60 MHz	
Total Memory Size	6144 MB	8
CPU Temperature	54.0 °C	
Vcore	1.168 V	
DRAM Voltage	1.584 V	

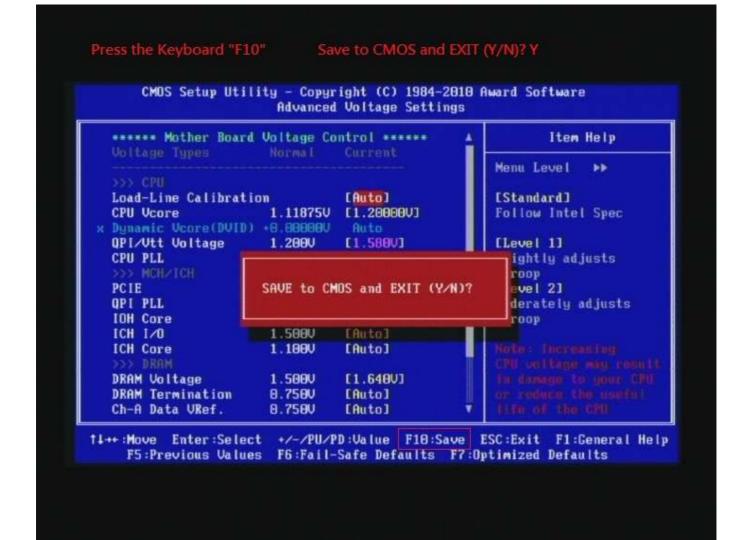
### 9. Select [CPU Vcore] item to [1.20008V]

Select [QPI/Vtt Voltage] item , and set the value to [1.580].

Select[DRAM Voltage] item , and set the value to [1.640V]



#### 10. Save BIOS changes [F10] and exit



#### Test result?

We use the strictest stress testing , multi-core MemTest in

window 7 <sup>,</sup> to show you PRINCO DDR3-1800 potential.

(Data rate : 952.2\*2=1904 , timing : 8, 9, 8, 27 , multi-core test =>

pass!)

👋 [O Errors] MemTest 📃 🔳 🗙	👋 [O Errors] MemTest 📃 🖂 🗙	Z CPU-Z
Enter megabytes of RAM to test	Enter megabytes of RAM to test	CPU Caches Mainboard Memory SPD Graphics About CPU Caches Mainboard Mem
700	700	Processor Name Intel Core i7 950 Motherboard Use for the Core i7 950
		Code Name Bloomfield Brand ID Manufacturer Gigabyte Technolog Model X58A-UD3R
Start Testing Stop Testing	Start Testing Stop Testing	Package Socket 1366 LGA CORE Chinset Intel
About MemTest	About MemTest	Technology 45 nm Core Voltage 1.152 V Inside Southbridge Intel
If you find the free version useful, please considering purchasing the PRO	If you find the free version useful, please considering purchasing the PRO	Specification         Intel(R) Core(TM) i7 CPU         950 @ 3.07GHz         LPCIO         ΠΕ           Family         6         Model         A         Stepping         5         LPCIO         ΠΕ
(\$5) or Deluxe (\$14) versions, which add additional features.	(\$5) or Deluxe (\$14) versions, which add additional features.	Ext. Family 6 Ext. Model 1A Revision D0 BIOS
[/] 153.4% Coverage, 0 Errors	[V] 155.3% Coverage, 0 Errors	Instructions MMX, SSE (1, 2, 3, 3S, 4.1, 4.2), EM64T, VT-x Brand Award Software In
		Clocks (Core #0) Cache Version FB Date 08/24/2010
💊 [O Errors] Mem Test 📃 🗆 🗙	🏷 [O Errors] Mem Test 📃 🗶	Core speed 2392.5 min2 L1 Data 4 X 32 KOytes 0-way
Enter megabytes of RAM to test	Enter megabytes of RAM to test	Multiplier         x 22.0         L1 Inst.         4 x 32 KBytes         4-way         Graphic Interface           Bus Speed         136.0 MHz         Level 2         4 x 256 KBytes         8-way         Version
700	700	QPI Link         2448.4 MHz         Level 3         8 MBytes         16-way         Link Width         x16
Start Testing   Stop Testing	Start Testing   Stop Testing	Selection Processor#1 Cores 4 Threads 8
About MemTest	About MemTest	
If you find the free version useful,	If you find the free version useful,	CPU-Z Version 1.56 Validate OK CPU-Z Version 1.56
please considering purchasing the PRO (\$5) or Deluxe (\$14) versions, which	please considering purchasing the PRO (\$5) or Deluxe (\$14) versions, which	Z CPU-Z
add additional features.	add additional features.	CPU Caches Mainboard Memory SPD Graphics About CPU Caches Mainboard Mem
[/] 152.5% Coverage, 0 Errors	[7] 152.1% Coverage, 0 Errors	General Type DDR3 Channels # Triple Slot #1 Triple
💊 [O Errors] MemTest 📃 🗖 🗙	🐝 [O Errors] MemTest 📃 🗖 🗙	Type     Durs     Channels #     Triple       Size     6144 MBytes     DG Mode     Module Size     2048 ME
Enter megabytes of RAM to test	Enter megabytes of RAM to test	NB Frequency 3808.6 MHz Max Bandwidth PC3-10700 (
700	700	Timings Manufacturer
		DRAM Frequency 952.2 MHz Part Number PRINCO-DR3- FSB:DRAM 2:14 Serial Number
Start Testing Stop Testing	Start Testing Stop Testing	CAS# Latency (CL) 8.0 clocks
About MemTest	About MemTest	RAS# to CAS# Delay (tRCD) 9 clocks JEDEC #3
If you find the free version useful,	If you find the free version useful,	RAS# Precharge (tRP) 8 clocks Frequency 609 MHz Cuple Time (tRAS) 27 clocks CAS# Latency 8.0
please considering purchasing the PRO (\$5) or Deluxe (\$14) versions, which	please considering purchasing the PRO (\$5) or Deluxe (\$14) versions, which	Cycle Time (tRAS)         27 clocks         CAS# Latency         0.0           Row Refresh Cycle Time (tRFC)         106 clocks         RAS# to CAS#         8
add additional features.	add additional features.	Command Rate (CR) 1T RAS# Precharge 8
[/] 152.4% Coverage, 0 Errors	[/] 152.1% Coverage, 0 Errors	DRAM Idle Timer tRAS 22 tRC 30
😽 [O Errors] MemTest 📃 🗖 🗙	💕 [O Errors] MemTest 📃 🖂 🗙	Total CAS# (tRDRAM) Command Rate Command Rate
Enter megabytes of RAM to test	Enter megabytes of RAM to test	Voltage 1.50 V
700	All unused RAM	CPU-Z Version 1.56 Validate OK CPU-Z Version 1.56
Start Testing   Stop Testing	Start Testing Stop Testing	s Windows 工作管理員
About MemTest	About MemTest	檔案(F) 選項(O) 檢視(V) 說明(H)
		應用程式 處理程序 服務 效能  網路功能 使用者
If you find the free version useful, please considering purchasing the PRO	If you find the free version useful, please considering purchasing the PRO	CPU 使用率── CPU 使用率記錄
(\$5) or Deluxe (\$14) versions, which add additional features.	(\$5) or Deluxe (\$14) versions, which add additional features.	
[V] 149.8% Coverage, 0 Errors	[V] 339.5% Coverage, 0 Errors	
-		
		「記憶體」 「一一」一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一一
		5.67 GB