# PRINCO DDR3-1800 user guide and testing for ASUS P7H55-M Motherboard

# CPU i3-540 3.07G



# Part I: Standard test

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

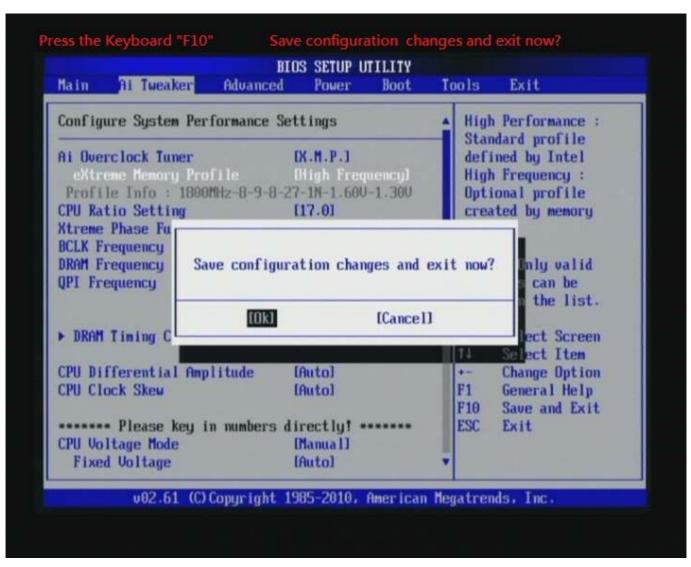
How to use?

- 0. Clear BIOS to mainboard initial setting
- 1. Enter BIOS setup and [Ai Tweaker] menu
- 2. Enter [Ai Overclock Tuner] item and choose X.M.P option BIOS will load X.M.P parameter in SPD on DIMM board , which are performance optimized for PRINCO DDR3-1800 DIMM board
- Enter [eXtreme Memory Profile] item and select
   [High Frequency]
  - Ps : [High Frequency] for 1800Mhz

[High Performancel] for 1600Mhz

tep 2 : Ai Overclock Tuner eXtreme Memory Profile		Set [X, M, P, ] Set [High Frequency
	IOS SETUP UTILITY	Tools Exit
Configure System Performance S Ai Overclock Tuner eXtreme Memory Profile Profile Info : 1800MHz-8-9-8- CPU Ratio Setting Xtreme Phase Full Power Mode BCLK Frequency DRAM Frequency QPI Frequency	[X.M.P.] Digh Frequencul -27-1N-1.60U-1.30U [17.0]	<ul> <li>High Performance : Standard profile defined by Intel High Frequency : Optional profile created by memory vendor</li> <li>Note : Only valid profiles can be shown on the list.</li> </ul>
<ul> <li>DRAM Timing Control</li> <li>CPU Differential Amplitude</li> <li>CPU Clock Skew</li> <li>Please key in numbers</li> <li>CPU Voltage Mode</li> <li>Fixed Voltage</li> </ul>	[Auto] [Auto] directly! ****** [Manual] [Auto]	<pre>↔ Select Screen t4 Select Item +- Change Option F1 General Help F10 Save and Exit ESC Exit</pre>

### 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 : 900.1\*2=1800, timing : 8, 9, 8, 27, multi-core test => pass!)

NAL STREET, ST		2 CHI 2	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 Memory
		Processor	Motherboard
840	840	Name Intel Core i3 540	Manufacturer ASUSTeK Computer INC.
Start Testing   Stop Testing	Start Testing   Stop Testing		Model P7H55-M
About MemTest	About MemTest	Package Socket 1156 LGA CORE Inside	Chipset Intel Havendale/
		Specification Intel(R) Core(TM) i3 CPU 540 @ 3.07GHz	Southbridge Intel
please considering purchasing the PRO	If you find the free version useful, please considering purchasing the PRO	Family 6 Model 5 Stepping 2	LPCIO   Winbond   W
(\$5) or Deluxe (\$14) versions, which add additional features.	(\$5) or Deluxe (\$14) versions, which add additional features.	Ext. Family 6 Ext. Model 25 Revision C2	BIOS
[7] 104.5% Coverage, 0 Errors	/] 103.9% Coverage, 0 Errors	Instructions   MMX, SSE (1, 2, 3, 3S, 4.1, 4.2), EM64T, VT-x	Brand American Megatrends Inc Version 1101
		Clocks (Core #0) Cache	Date 08/18/2010
	[0 Errors] MemTest	Core Speed         3060.4 MHz         L1 Data         2 x 32 KBytes         8-way           Multiplier         x 17.0         L1 Inst.         2 x 32 KBytes         4-way	Graphic Interface
Enter megabytes of RAM to test	-Enter megabytes of RAM to test	Bus Speed 180.0 MHz Level 2 2 x 256 KBytes 8-way	Version
840	All unused RAM	QPI Link 3960.5 MHz Level 3 4 MBytes 16-way	Link Width x16
			Side Band
Start Testing Stop Testing	Start Testing Stop Testing	Selection Processor #1  Cores 2 Threads 4	
About MemTest	About MemTest	CPU-Z Version 1.56 Validate OK	CPU-Z Version 1.56
If you find the free version useful, please considering purchasing the PRO (\$5) or Deluxe (\$14) versions, which	If you find the free version useful,		Z CPU-Z
(\$5) or Deluxe (\$14) versions, which add additional features	please considering purchasing the PRO (\$5) or Deluxe (\$14) versions, which add additional features		and the second sec
		CPU Caches Mainboard Memory SPD Graphics About	CPU Caches Mainboard Memory
[1] 105.6% Coverage, 0 Errors	] 111.5% Coverage, 0 Errors	Type DDR3 Channels # Dual	Slot #1 DDR3
i Windows 工作管理員		Size 4096 MBytes DC Mode Symmetric	Module Size 2048 MBytes
檔案(F) 選項(O) 檢視(V) 說明(H)		NB Frequency 2880.4 MHz	Max Bandwidth PC3-10700 (667 M
應用程式 處理程序 服務 效能	網路功能 使用者	Timings DRAM Frequency 900.1 MHz	Manufacturer Part Number PRINCO-DR3-1800
- CPU使用率──」 CPU使用率記錄-		DRAM Frequency 900.1 MHz FSB:DRAM 4:20	Part Number PRINCO-DR3-1800
		CAS# Latency (CL) 8.0 clocks	- Timinos Table
		RAS# to CAS# Delay (tRCD) 9 clocks	JEDEC #3 JEDEC Frequency 609 MHz 685 1
		RAS# Precharge (tRP) 8 clocks Cycle Time (tRAS) 27 clocks	CAS# Latency 8.0 9.
□記憶體 □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	錄	Row Refresh Cycle Time (tRFC) 88 clocks	RAS# to CAS# 8 9
		Command Rate (CR) 1T	RAS# Precharge 8 9
3.62 GB		DRAM Idie Timer	tRAS 22 25 tRC 30 34
		Total CAS# (IRDRAM) Row To Column (IRCD)	Command Rate
	統 []] 制代碼 7931 []]		Voltage 1.50 V 1.50
快取的 259 執行	行緒 365 理程序 33	CPU-Z Version 1.56 Validate OK	CPU-Z Version 1.56
未使用 6 存留	留時間 0:00:23:21		
核心記憶體 (MB)	可(MB) 3885/7930		
已分頁 102 非分頁 15	🚱 資源監視器(R)		
虚理程序: 33 CPU 使用率: 100%	 實體記憶體:93%		

## 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 [Ai Tweaker] menu
- 2. Enter [Ai Overclock Tuner] item and select [Manual]
- 3. Select [BLCK Frequency] item <sup>,</sup> and increase to higher Base clock rate (ex:193). Then select [DRAM Frequency] item <sup>,</sup> and set the DDR3 memory to higher clock rate (ex:DDR3-1930). Don't forget setting [CPU Ratio Setting] item to suitable ratio (ex:14.0)

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

4. Select[DRAM Voltage] item , and set the value to [1.650V]

Step 1: Select " Ai Tweaker "	
Step 2: Ai Overclock Tuner	Set [Manual]
Step 3: BCLK Frequency	Set [193]
Step 4: DRAM Frequencry	Set [DDR3_1930]
Step 5 : CPU Ratio Setting	Set [14]
Step 6 : DRAM Bus Voltage	Set [1.650V]
BIOS SETUP UTILITY	
	ools Exit
Step 1 Configure System Performance Settings	Min = 1.2000 Max = 2.4450
Ai Overclock Tuner [Manual] Step 2	Standard = $1.5000$
CPU Ratio Setting [14.0] Step 5	
Xtreme Phase Full Power Mode [Auto]	
BCLK Frequency         [193]         Step 3           DRAM Frequency         [DDR3-1930MHz]         Step 4	
DRAM Frequency [DDR3-1930MHz] Step 4 QPI Frequency [Auto]	
dis traducing	
► DRAM Tining Control	
CPU Differential Amplitude [Auto]	++ Select Screen
CPU Clock Skew [Auto]	14 Select Item
	F1 General Help
******* Please key in numbers directly! *******	F10 Save and Exit
CPU Voltage Mode [Manual] Fixed Voltage [Auto]	ESC Exit
IMC Voltage [Auto]	
DRAM Voltage [1.650] Step 6	
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# 5. Enter [DRAM Timing Control] item

Main	Ai Tweaker	BI Advanced	DS SETUP U Power	Boot	Tools	Exit
Configure	e System Per	formance Se	ttings		DRAM	Timing Control
CPU Ratio	luency	wer Mode	[Manua I] [14.0] [Auto] [193] [DDR3-1930 [Auto]	MHz]		
CPU Diffe CPU Clock	Please key i age Mode Joltage age	litude n numbers d	[Auto] [Auto] irect ly† = [Manua 1] [Auto] [Auto] [14650]		++ t4 Ente F1 F10 ESC	Conference of the South of the

6. set [DRAM CAS# Latency] item to [8 DRAM Clock] set [DRAM RAS# to CAS# Delay] item to [9 DRAM Clock] set [DRAM RAS# PRE Time] item to [8 DRAM Clock] set [DRAM RAS# ACT Time] item to [27 DRAM Clock] set [DRAM Timing Mode] item to [1N]

then return to previous to [Ai Overclock Tuner] menu

Step 1 : DRAM CAS# Latency			Set	[8 CLK]
DRAM RAS# to CAS# D	elay		Set	[9 CLK]
DRAM RAS# PRE Time				[8 CLK]
DRAM RAS# ACT Time				[27 CLK]
Step 2 : DRAM Timing Mode				[1T]
	IOS SETUP UTI	LITY		
Ai Tweaker	ferte des 60 ministrations internet			
DRAM Timing Control			[tCL]	Contraction and the second
1st Information : 9-9-9-24-4-7	4-10-5-20		CASH	Latency
DRAM CASH Latency	E 8 DRAM Clo	ckl		
DRAM RASH to CASH Delay	E 9 DRAM Clo	Laboration of the second se		
DRAM RAS# PRE Time	I 8 DRAM Clo	CKI		
DRAM RAS# ACT Time	127 DRAM Clo	ckl		
DRAM RASH to RASH Delay	[Auto]			
DRAM REF Cycle Time DRAM WRITE Recovery Time	[Auto] [Auto]			
DRAM READ to PRE Time	Inutol			
DRAM FOUR ACT WIN Time	[Auto]			
DRAM Timing Mode	[1N] Step	2	**	Select Screen
DRAM WRITE To READ Delay(DR)	[Auto]	10 A	11	Select Item
DRAM WRITE To READ Delay(SR)	[Auto]		+-	Change Option
DRAM READ To WRITE Delay(S/D)	[Auto]		F1	General Help
DRAM READ TO READ Delay (DR)	[Auto]		F10	Save and Exit
DRAM READ TO READ Delay(SR) DRAM WRITE TO WRITE Delay(DR)	[Auto] [Auto]		ESC	Exit
DRAM WRITE TO WRITE Delay(SR)	IAutol			
v02.61 (C)Copyright	1985-2010, Am	erican Meg	atren	ds, Inc.

# 7. Save BIOS changes [F10] and exit

Ai Tweaker		
AM Timing Control	- CAS# Latency	
t Information : 9-9-9-24-		chow Latency
AM CASH Latency	[ 8 DRAM Clock]	
AM CASH Latency AM RASH to CASH Delay	[ 9 DRAM Clock]	
AM RAS# PRE Time	I 8 DRAM Clock]	
AM RASH ACT T		
AM RASH to RA		
	'iguration changes and e	exit now?
AM WRITE Reco		
AM READ to PR		
	kl [Cancel]	
AM Tining Mod AM WRITE To READ Delay(DR	) [Auto]	ect Screen
AM WRITE TO READ Delay(SR		+- Change Option
a set a set of the set		
	8 T T A S A S A F A	
	[Auto]	DSUS DOGETH
AM READ TO READ Delay(SR) AM WRITE TO WRITE Delay(D		ESC Exit
AM READ TO WRITE Delay(S/ AM READ TO READ Delay(DR)	D) [Auto]	F1 General Help F10 Save and Ext

### Test result?

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

window 7, to show you PRINCO DDR3-1800 potential.

(Data rate : 966.1\*2=1932, timing : 8, 9, 8, 27, multi-core test => pass!)

