PRINCO DDR3-1800 user guide and testing

for ASUS MAXINMUS III Motherboard

CPU i5-670 3.47G

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 [Extreme 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

   3. Enter [eXtreme Memory Profile] item and select [Profile #2]

   Ps : [profile #2] for 1800Mhz

   [profile #1] for 1600Mhz

BIOS SETUP UTILITY

| Extreme Tweaker | Main | Advanced | Power | Boot | Tools | Exit |

Step 1

Configure System Performance Settings

```
Target CPU Frequency: 3600MHz
Target DRAM Frequency: 1804MHz

CPU Level Up                    [Auto]
Memory Level Up                 [Auto]
---------------------------------------
Ai Overclock Tuner              [X.M.P.]  Step 2
  eXtreme Memory Profile        [Profile #2]  Step 3
  Profile Info : 1800MHz-8-9-8-27-1N-1.60V-1.30V
CPU Ratio Setting               [20.0]
▶ CPU Configuration
•Intel(R) SpeedStep(TM) Tech    [Disabled]
BCLK Frequency                  [180]
DRAM Frequency                  [DDR3-1800MHz]
QPI Frequency                   [Auto]

Start auto tuning
OC Tuner                        [Turbo Profile]
```

Profile #1 :
Standard profile
defined by Intel
Profile #2 :
Optional profile
created by memory
vendor

Note : Only valid
profiles can be
shown on the list.

```
←→      Select Screen
↑↓      Select Item
+-      Change Option
F1      General Help
F10     Save and Exit
ESC     Exit
```

v02.61 (C)Copyright 1985-2009, American Megatrends, Inc.

4. Save BIOS changes [F10] and exit

Press the Keyboard "F10"   Save configuration changes and exit now?

BIOS SETUP UTILITY

| Extreme Tweaker | Main | Advanced | Power | Boot | Tools | Exit |

Configure System Performance Settings

Target CPU Frequency: 3600MHz
Target DRAM Frequency: 1804MHz

CPU Level Up   [Auto]
Memory Level Up

Ai Overclock Tu
  eXtreme Memor
  Profile Info :
CPU Ratio Setti
▶ CPU Configura
•Intel(R) SpeedStep(TM) Tech   [Disabled]
BCLK Frequency   [180]
DRAM Frequency   [DDR3-1800MHz]
QPI Frequency   [Auto]

Start auto tuning
OC Tuner   [Turbo Profile]

Profile #1 :
Standard profile
defined by Intel
Profile #2 :
Optional profile
created by memory

nly valid
can be
the list.

Save configuration changes and exit now?

         [Ok]   [Cancel]

↑↓   Select Item
+-   Change Option
F1   General Help
F10   Save and Exit
ESC   Exit

ect Screen

v02.61 (C)Copyright 1985-2009, American Megatrends, Inc.

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：902.9*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 [Extreme Tweaker] menu

2. Enter [Ai Overclock Tuner] item and select [Manual]

3. Select [BLCK Frequency] item，and increase to higher Base clock rate (ex:192). Then select [DRAM Frequency] item，and set the DDR3 memory to higher clock rate (ex:DDR3-1920). Don't forget setting [CPU Ratio Setting] item to suitable ratio (ex:17.0)

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

Step 1 : Select " Extreme Tweaker "
Step 2 : Ai Overclock Tuner   Set [Manual]
Step 3 : BCLK Frequency   Set [192]
Step 4 : DRAM Frequencry   Set [DDR3-1920MHz]
Step 5 : CPU Ratio Setting   Set [17.0]

BIOS SETUP UTILITY

Extreme Tweaker   Main   Advanced   Power   Boot   Tools   Exit

Step 1

Configure System Performance Settings

Target CPU Frequency: 3264MHz
Target DRAM Frequency: 1924MHz

You can OC based on "OC From CPU/Memory Level Up"
Ai Overclock Tuner   [Manual] Step 2
OC From CPU Level Up   [Auto]
OC From Memory Level Up   [Auto]
CPU Ratio Setting   [17.0] Step 5
▶ CPU Configuration
•Intel(R) SpeedStep(TM) Tech [Disabled]
BCLK Frequency   [192] Step 3
PCIE Frequency   [100]
DRAM Frequency   [DDR3-1920MHz] Step 4
QPI Frequency   [Auto]

Start auto tuning
OC Tuner   [Turbo Profile]

Sets the ratio between
CPU Core Clock and the
FSB Frequency.
NOTE: If an invalid
ratio is set in CMOS
then actual and
setpoint values may
differ.

↔   Select Screen
↑↓   Select Item
F1   General Help
F10   Save and Exit
ESC   Exit

v02.61 (C)Copyright 1985-2009, American Megatrends, Inc.

4. Enter [DRAM Timing Control] item

5. 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
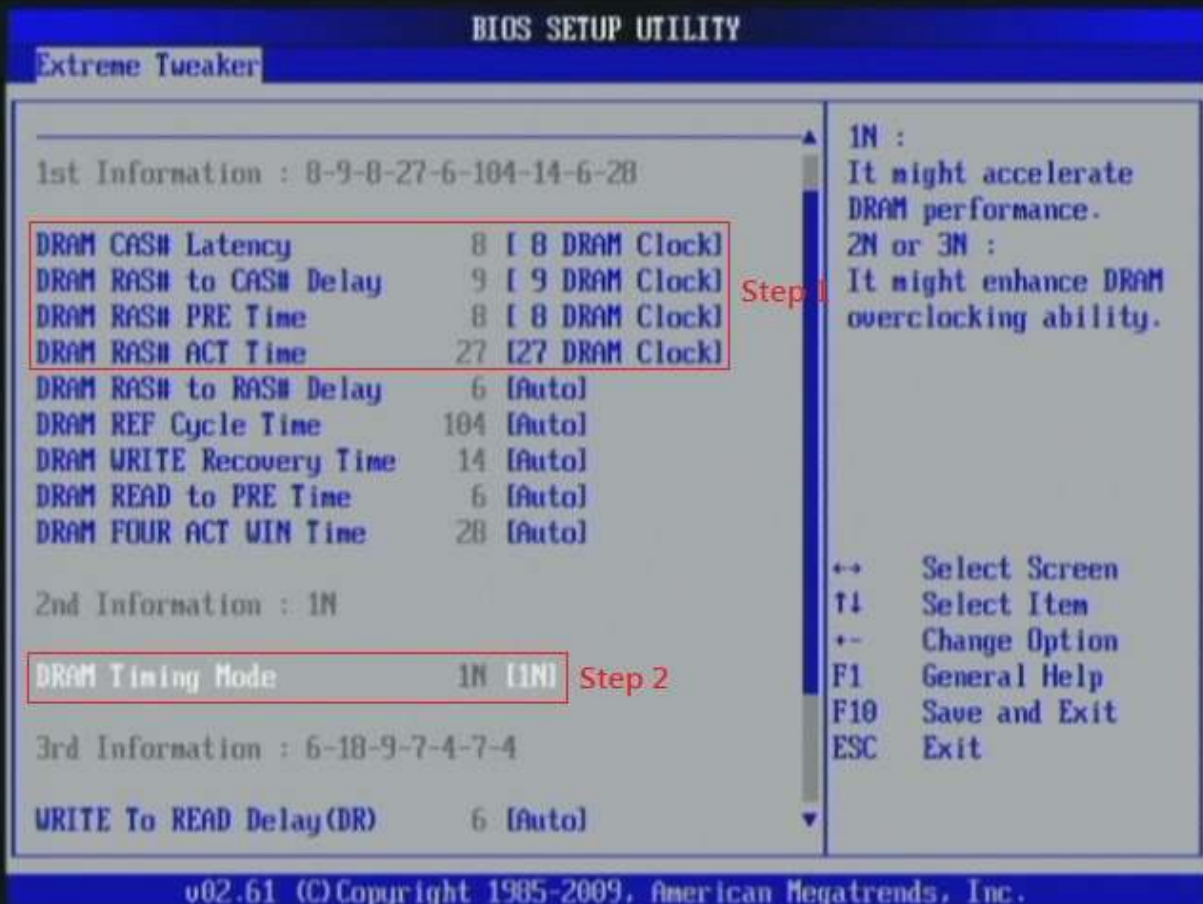
6. Select [IMC Voltage] item , and set the value to [1.35150].

Select[DRAM Bus Voltage] item , and set the value to [1.64300]

Step 1 : IMC Voltage   Set [1.35150]
Step 2 : DRAM Voltage   Set [1.64300]

BIOS SETUP UTILITY

Extreme Tweaker   Main   Advanced   Power   Boot   Tools   Exit

PCH Clock Amplitude   [Auto]   ▲   Min = 1.20575V
CPU Clock Skew   [Auto]   Max = 2.50425V(*)
PCH Clock Skew   [Auto]   Standard = 1.55025V
******* Please key in numbers directly! *******   Increment = 13.25mV
Current Voltage: 1.204V 1.806V 1.356V   +/- : Raise/Reduce
CPU Temperature: 46.5°C/115.5°F
Extreme OV   [Disabled]
LN2 Mode   [Disabled]
Full Phase Control   [Full Phase]
Load-Line Calibration   [Auto]
CPU Voltage Mode   [VID]
CPU Voltage   [Auto]
CPU PLL Voltage   [Auto]   ↔   Select Screen
IMC Voltage   [1.35150] Step 1   ↑↓   Select Item
Current Voltage: 1.058V   F1   General Help
PCH Temperature: 38°C/100°F   F10   Save and Exit
PCH Voltage   [Auto]   ESC   Exit
Current Voltage: 1.627V
DRAM Voltage   [1.64300] Step 2
DRAM DATA REF Voltage on CHA [Auto]   ▼

v02.61 (C)Copyright 1985-2009, American Megatrends, Inc.

7. Save BIOS changes [F10] and exit

BIOS SETUP UTILITY

Extreme Tweaker

1st Information : 8-9-8-27-6-104-14-6-28

DRAM CAS# Latency   8 [8 DRAM Clock]
DRAM RAS# to CAS# Delay   9 [9 DRAM Clock]
DRAM RAS# PRE Time   8 [8 DRAM Clock]
DRAM RAS# ACT T
DRAM RAS# to RA
DRAM REF Cycle
DRAM WRITE Reco
DRAM READ to PR
DRAM FOUR ACT W

Save configuration changes and exit now?

[Ok]   [Cancel]

2nd Information : 1N

DRAM Timing Mode   1N [1N]

3rd Information : 6-18-9-7-4-7-4

WRITE To READ Delay(DR)   6 [Auto]

1N :
It might accelerate
DRAM performance.
2N or 3N :
It might enhance DRAM
overclocking ability.

→← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit

v02.61 (C)Copyright 1985-2009, American Megatrends, Inc.

Test result?

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

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

(Data rate：963.4*2=1927, timing：8, 9, 8, 27, multi-core test => pass!)