PRINCO DDR3-1800 user guide and testing for ASUS Crosshair IV Motherboard

AMD 1090T 3.20G

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 select [Manual]

3. Select [CPU Bus Frequency] item，and increase to higher Base clock rate (ex:225). Then select [DRAM Frequency] item，and set the DDR3 memory to higher clock rate (ex:1800MHz). Don't forget setting [CPU Ratio] item to suitable ratio (ex:14.0)

4. Select[DRAM Voltage] item , and set the value to [1.60000]

Step 1 : Ai Overclock Tuner   Set [Manual]

Step 2 : CPU Bus Frequency   Set [225]

Step 2 : DRAM Frequency   Set [1800MHz]

Step 3 : CPU Ratio   Set [14.0]

Step 4 : DRAM Voltage   Set [1.60000]

5. Enter [DRAM Timing Configuration] item

Select " DRAM Timing Configuration "

Crosshair IV Formula BIOS Setup		Version 1005

Extreme Tweaker Main   Advanced   Power   Boot   Tools   Exit

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OC Tuner Utility
Ai Overclock Tuner          [Manual]
CPU Ratio                   [14.0]
AMD Turbo CORE technology   [Auto]
CPU Bus Frequency           [225]
PCIE Frequency              [100]
DRAM Frequency              [1800MHz]
CPU/NB Frequency            [Auto]
HT Link Speed               [Auto]
▶ DRAM Timing Configuration
▶ DRAM Driving Configuration
******* Please key in numbers directly! *******
Extreme OV                  [Disabled]
CPU & NB Voltage Mode       [Offset]
   CPU Offset Voltage     1.270 [Auto]
   CPU/NB Offset Voltage  1.158 [Auto]
CPU VDDA Voltage           2.514 [Auto]
DRAM Voltage               1.488 [1.60000]
HT Voltage                 1.191 [Auto]
```

```
↔     Select Screen
↑↓    Select Item
Enter Go to Sub Screen
F1    General Help
F10   Save and Exit
ESC   Exit
```

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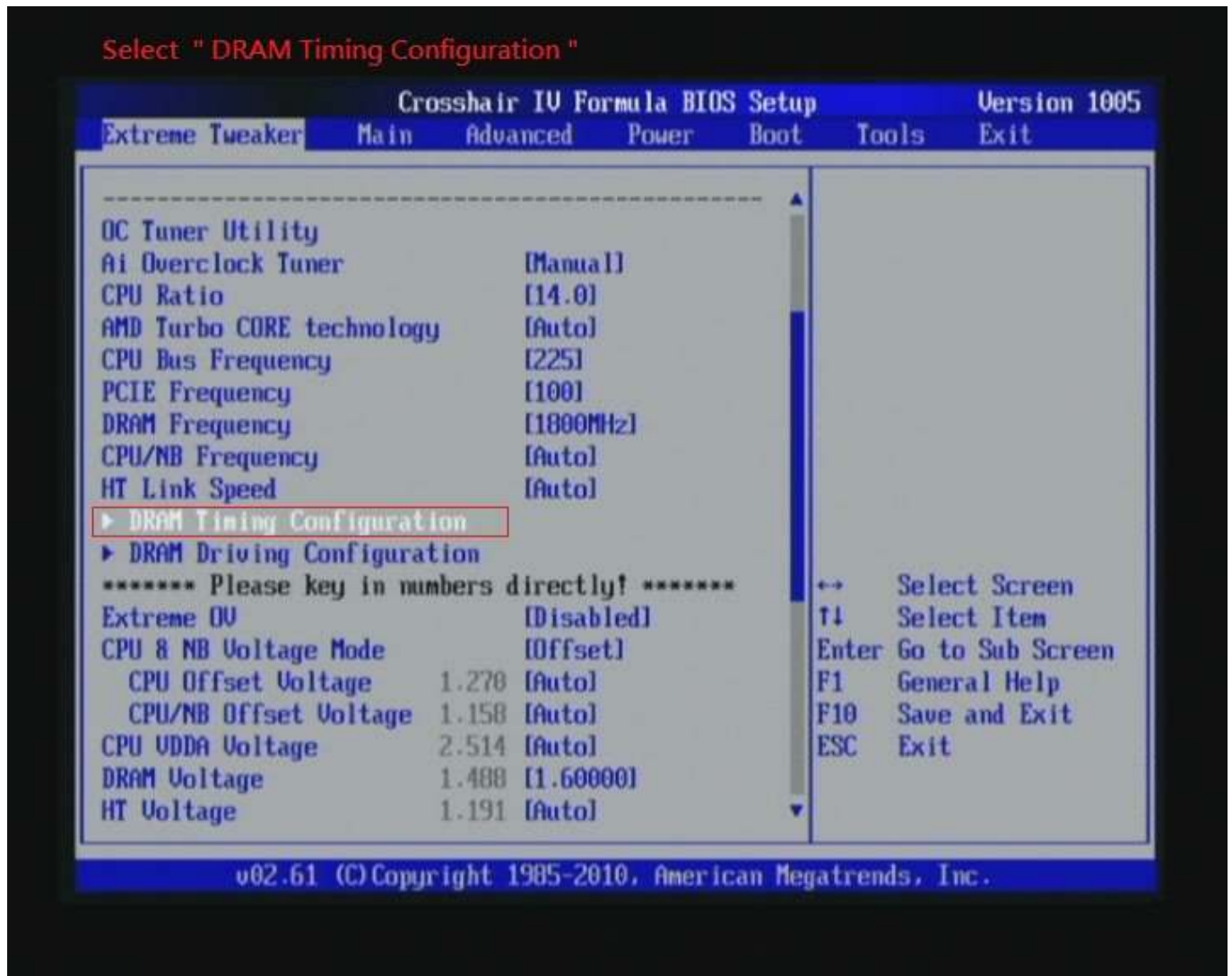
6. set [DRAM CAS# Latency] item to [8 CLK]

set [DRAM RAS# to CAS# Delay] item to [9 CLK]

set [DRAM RAS# PRE Time] item to [8 CLK]

set [DRAM RAS# ACT Time] item to [27 CLK]

set [DRAM Command Rate] item to [1T]

then return to previous to [Ai Overclock Tuner] menu

7. Save BIOS changes [F10] and exit

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

Crosshair IV Formula BIOS Setup   Version 1005
Extreme Tweaker

DRAM 1st Information : 8-9-8-27-5-40-12-5
DRAM CAS# Latency   8 [8 CLK]
DRAM RAS# to CAS# Delay   9 [9 CLK]
DRAM RAS# PRE Time   8 [8 CLK]
DRAM RAS# ACT Time   27 [27 CLK]
DRAM READ to PR
DRAM Row Cycle
DRAM WRITE Reco   Save configuration changes and exit now?
DRAM RAS# to RA

DRAM 2nd Inform
DRAM READ To WR   [Ok]   [Cancel]
DRAM WRITE To READ Delay(DD) 4 [Auto]
DRAM WRITE To READ Delay(SD) 6 [Auto]
DRAM WRITE To WRITE Timing   4 [Auto]
DRAM READ To READ Timing   6 [Auto]
DRAM REF Cycle Time   110 [Auto]
DRAM Refresh Rate   7.8 [Auto]
DRAM Command Rate   1T [1T]

DRAM Command Rate:
1T: DRAM address and
control signals are
driven for one MEMCLK
cycle.
2T: One additional
of setup time
ded on all
ress and
signals.

ect Screen
Select Item
+-   Change Option
F1   General Help
F10   Save and Exit
ESC   Exit

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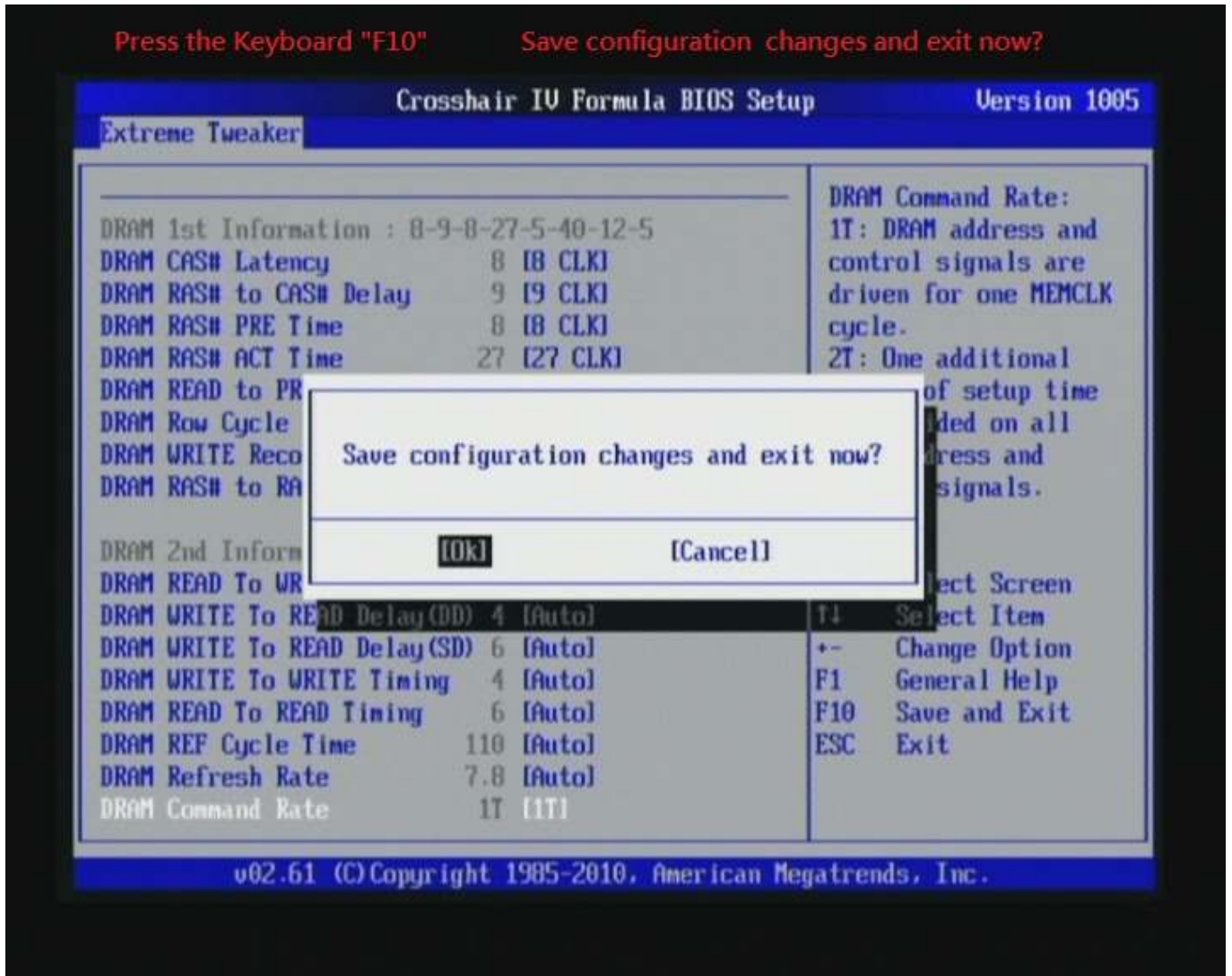
Test result?

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：903.0*2=1806,　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 [CPU Bus Frequency] item，and increase to higher Base clock rate (ex:243). Then select [DRAM Frequency] item，and set the DDR3 memory to higher clock rate (ex:1944MHz). Don't forget setting [CPU Ratio] item to suitable ratio (ex:13.0)

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

4. Select[DRAM Voltage] item , and set the value to [1.65000]

Step 1 : Ai Overclock Tuner	Set [Manual]
Step 2 : CPU Bus Frequency	Set [243]
Step 2 : DRAM Frequency	Set [1944MHz]
Step 3 : CPU Ratio	Set [13.0]
Step 4 : DRAM Voltage	Set [1.65000]

```
          Crosshair IV Formula BIOS Setup              Version 1005
 Extreme Tweaker   Main   Advanced   Power   Boot   Tools   Exit

 OC Tuner Utility                                   ▲
 Ai Overclock Tuner            [Manual]   Step 1       Min = 1.20000U
 CPU Ratio                     [13.0]   Step 4         Max = 2.90000U
 AMD Turbo CORE technology     [Auto]                  Interval = 0.01250U
 CPU Bus Frequency             [243]   Step 2          Standard = 1.50000U
 PCIE Frequency                [100]
 DRAM Frequency                [1944MHz]   Step 3
 CPU/NB Frequency              [Auto]
 HT Link Speed                 [Auto]
 ▶ DRAM Timing Configuration
 ▶ DRAM Driving Configuration
 ******* Please key in numbers directly! *******
 Extreme OV                    [Disabled]          ↔      Select Screen
 CPU & NB Voltage Mode         [Offset]            ↑↓     Select Item
   CPU Offset Voltage    1.270 [Auto]              F1     General Help
   CPU/NB Offset Voltage 1.151 [Auto]              F10    Save and Exit
 CPU VDDA Voltage        2.514 [Auto]              ESC    Exit
 DRAM Voltage            1.693 [1.65000]   Step 5
 HT Voltage              1.191 [Auto]
 NB Voltage              1.111 [Auto]              ▼

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```

5. Enter [DRAM Timing Configuration] item
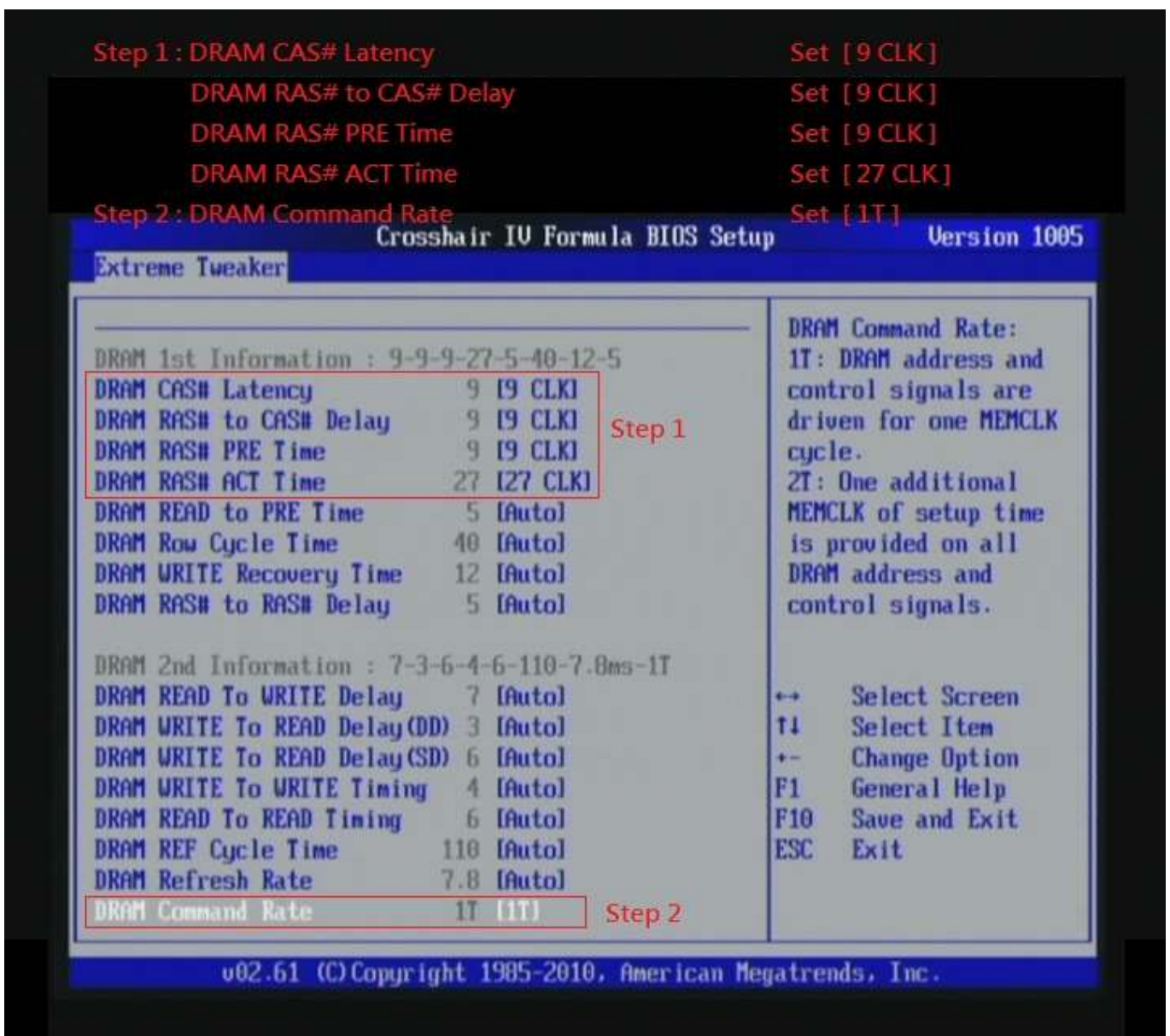
6. set [DRAM CAS# Latency] item to [9 CLK]

set [DRAM RAS# to CAS# Delay] item to [9 CLK]
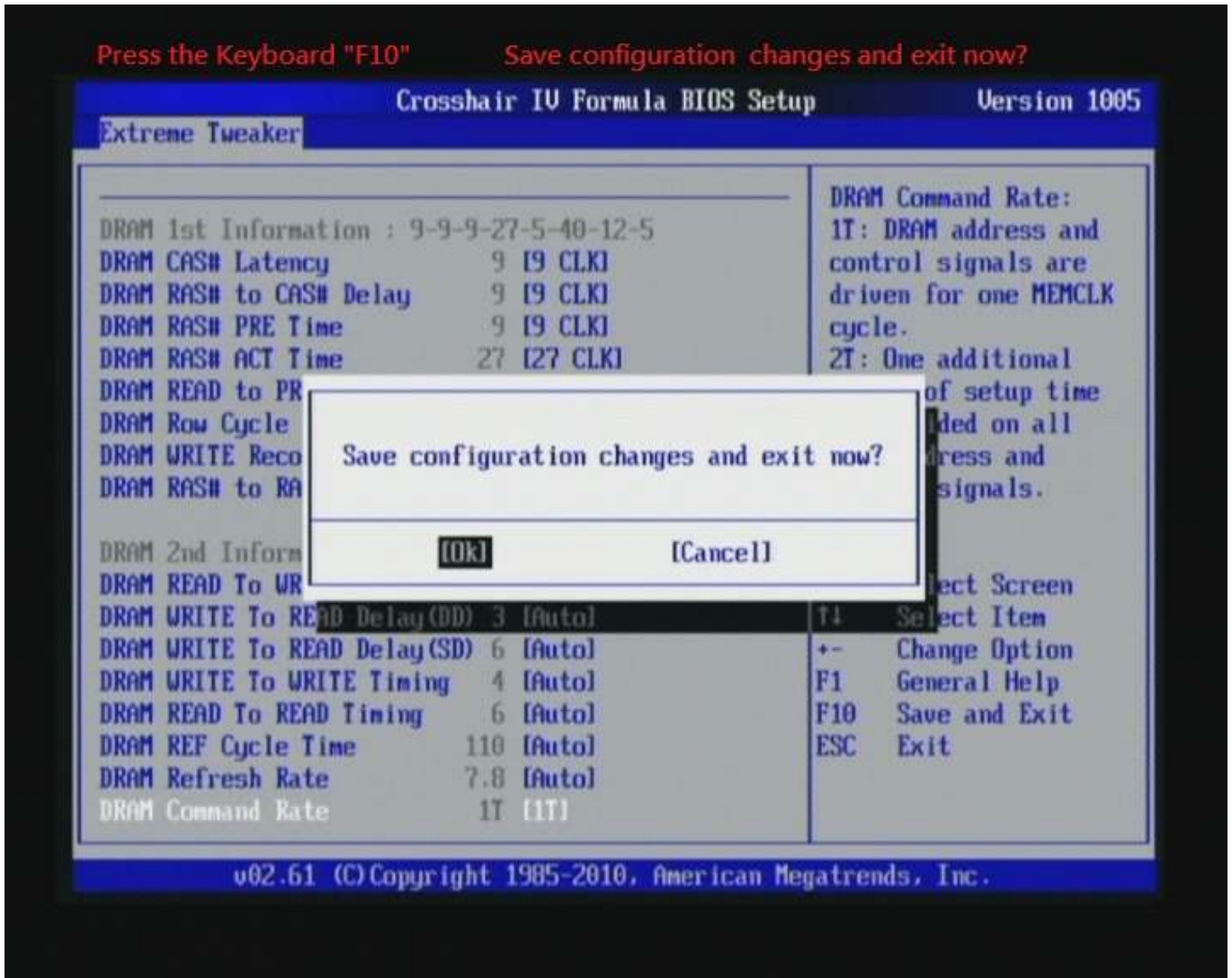
set [DRAM RAS# PRE Time] item to [9 CLK]

set [DRAM RAS# ACT Time] item to [27 CLK]

set [DRAM Command Rate] item to [1T]

then return to previous to [Ai Overclock Tuner] menu

7. Save BIOS changes [F10] and exit

Test result?

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

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

(Data rate：975.8*2=1952， timing：9, 9, 9, 27， multi-core test =>

pass!)