

IP Cam Secure Pre-Installation Notes

1. The IP Cam Secure requires a dedicated server class computer, high level CPU, more memory, high volume Hard disk. Please refer to IP Cam Secure Minimum Hardware Requirement to build the server:

<http://download.level1.com/level1/faq/IP%20CAM%20SECURE%20Minimum%20Hardware%20Requirement%2020100517.pdf>

2. The computer needs to be placed in well ventilated environment, preferably in a server room.
3. The average CPU loading should not exceed 80%
4. Independent Graphic Card (512MB or above) is necessary
5. Do not use NAS as recording storage
6. Do not change the OS time when recording has started
7. Virtual machine is not supported
8. In order to avoid license activation failed, please don't use RAID configuration in OS HDD
9. Do not use green series hard drive
After testing, we found green series hard drives couldn't provide a stable and good performance under the circumstance of record on motion and record on event. Because the hard drive doesn't read and write all the time, this kind of green series hard drive enters power saving mode which may result in dropping frame on recorded video. We do not recommend any WD Caviar Green series hard drives.
10. Install Sufficient RAM
Sufficient RAM is required to improve performance. Installing 3GB RAM for system with 32 or more video channels is recommended.
11. Separate System and Video Storage into Different Hard Drives
In most cases, Windows is installed in Drive C. Main Console is installed in Drive C, too. Since Windows and Main Console may access Drive C intensively, it is recommended to record video files into other hard drives. Please note that creating multiple partitions on single hard drive produces no performance improvement.
12. Set Recycle Condition Properly
Setting recycle condition properly is crucial for recording video files correctly. Almost-full hard drives operate slowly and sometimes fail to record video files smoothly. After testing, enable recycle function when the

total disk space falls under 10% is recommended

13. Disable Defragmentation Tasks

Disk Defragmenter is set to run on automatic schedule by default, you may want to modify the configuration of the schedule, or you just Defragment the disk manually and want to disable the disk defragmentation schedule since it can impact HDD performance during the process. Please refer to below link to turn it off:

[http://www.recipester.org/Recipe:Enable or Disable Disk Defragmenter Schedule in Windows 7 26429684](http://www.recipester.org/Recipe:Enable%20or%20Disable%20Disk%20Defragmenter%20Schedule%20in%20Windows%207%2026429684)

14. Optimize visual effect

Most of the applications that are running are set to improve the aesthetic look of the Windows by Visual Effects and are not necessarily adjusted for performance. If you have low memory (RAM) in your PC, you may want to change these settings from best appearance to best performance or you may want to choose settings manually. For more information please refer to below link:

<http://support.microsoft.com/kb/815069>

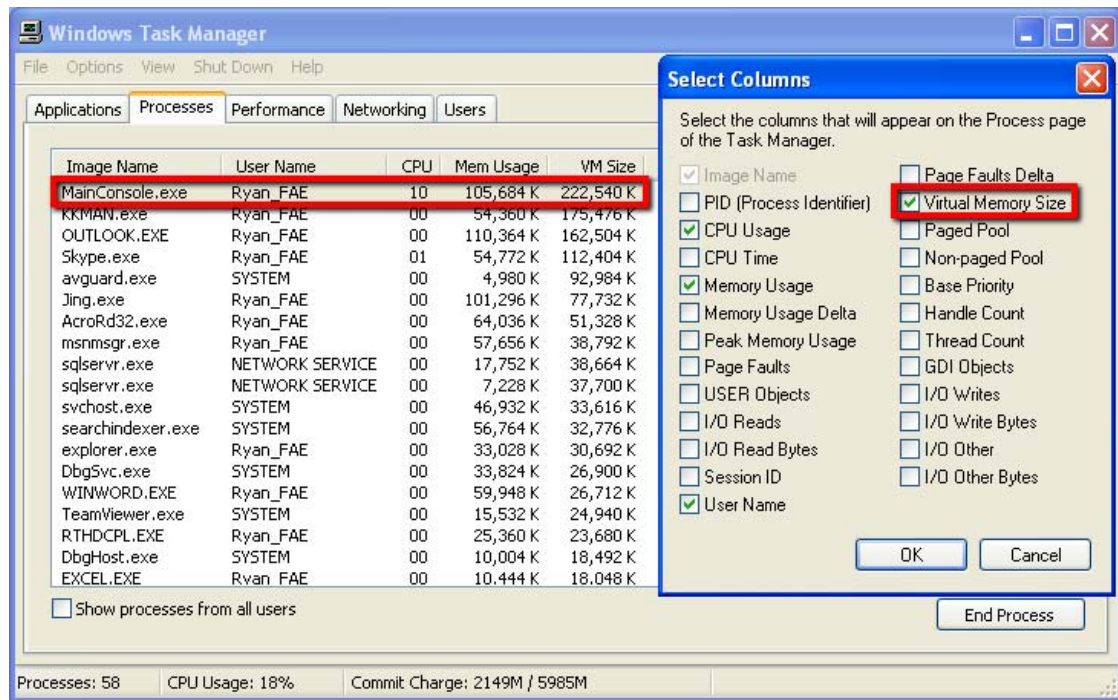
15. Optimize System Performance

Through these settings, system resources such as CPU, memory, and Disk I/O access can improve overall performance.

- (a) Turn off Automatic Update: by default, this task will reboot Windows on 3:00AM and interrupt video files recording.
- (b) Turn off System Restore on all drives: doing this can save disk space and CPU time for monitoring disks.
- (c) Disable Screen Saver: some Screen Saver will utilize Direct3D resources, which may affect the display performance
- (d) Disable Hibernation: the server computer should not be in stand-by mode and hibernation should be disabled.

16. Check the CPU usage and virtual memory size after software and hardware properly installed and configured.

- (a) The average CPU usage percentage should less than 80%.
- (b) The virtual memory size of the Main Console should less than 1.6G. Refer below for checking the index. (View→Select Columns→Check to show the index)



17. This is optional to run:

Standard Operation Process of Qualifying your IP Cam Secure server

Purpose

In order to qualify the IP Cam Secure server, we suggest you to conduct a stress test before using this computer as IP Cam Secure Server.

The whole process will take 1 day. Please follow below steps and checklist (Appendix 1) to finish the test.

A. Build up the server

1. Prepare CPU, RAM, motherboard and graphic according to note 1 above.
2. Install CPU, RAM, graphic card and FCS-8004/8005/8006 capture card on the motherboard.
3. Boot the PC and enter BIOS to disable "C3 state"¹.

B. OS/Driver installation and setup

1. Install OS (Windows 7 32 bit or Windows XP 32 bit).
2. Update windows to the latest.
3. Follow guideline on note 15 above.
4. Install the drivers of motherboard and VGA card. (Do not use

¹ C3 state: a state where the processor does not need to keep its [cache](#) coherent, but maintains other state. Some processors have variations on the C3 state (Deep Sleep, Deeper Sleep, etc.) that differ in how long it takes to wake the processor. This processor state is optional. Source: http://en.wikipedia.org/wiki/Advanced_Configuration_and_Power_Interface

embedded driver of OS)

- Update the latest driver of graphic card by accessing Intel, Nvidia or ATI website.

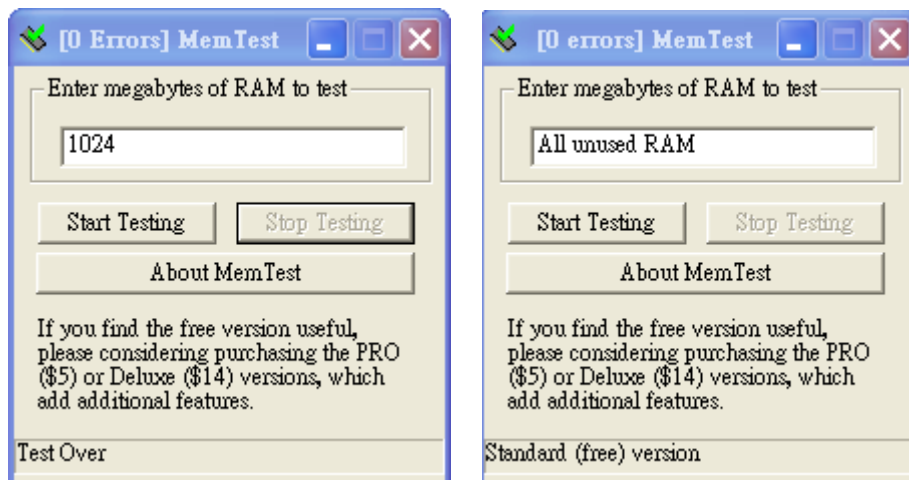
Intel: <http://www.intel.com/>

Nvidia: <http://www.nvidia.com/content/global/global.php>

Ati: <http://ati.amd.com/>

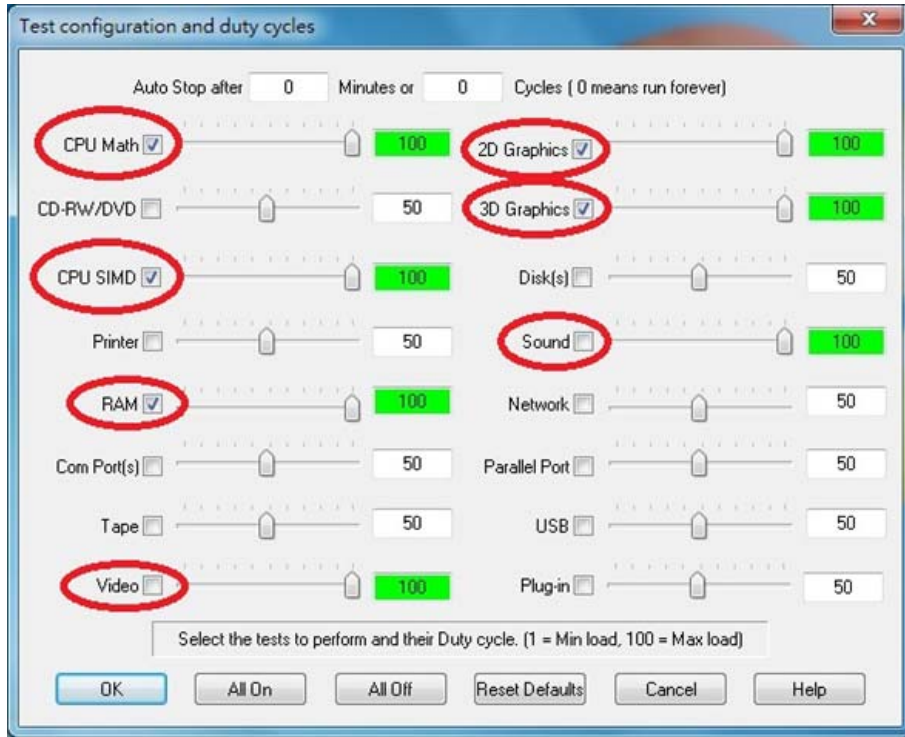
C. Memory test

- Download Memtest tool at <http://www.memtest.org/>
- Since this tool can only test 1024 MB one time, please execute it several times by following steps.
 - Check the memory of your RAM
 - Divide whole memory by 1024
 - For example, your RAM is 4096 MB, you will need to execute memtest.exe four times
 - Type 1024 MB in the first three dialog and type all unused memory in the last dialog
 - Click start testing on each dialog
 - Wait for the processing
 - If you see test coverage reaches 100% with 0 error, it means the one-fourth of your RAM works well; If you see any error message before reaching 100%, install a new RAM.

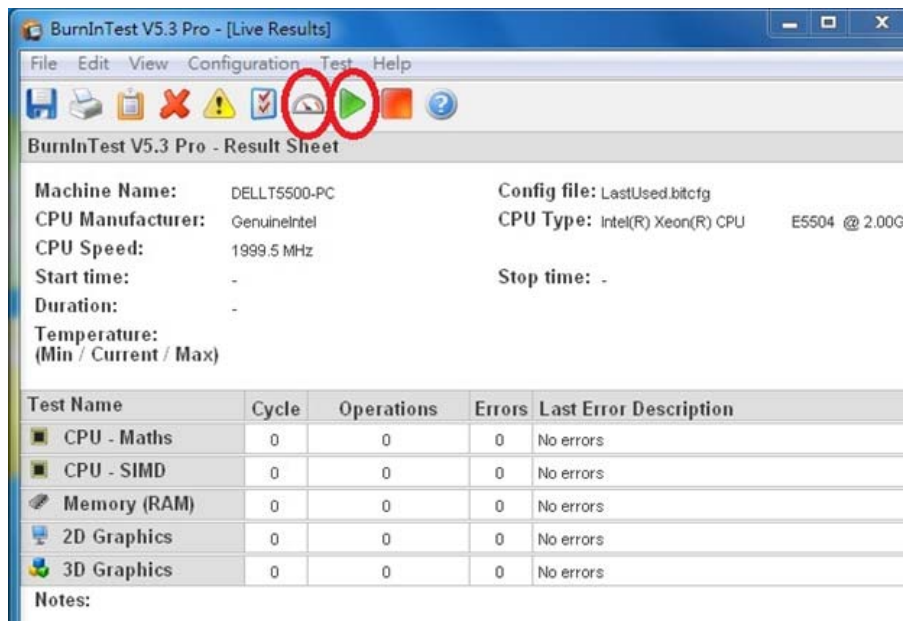


D. Burn-In Test

- Download the Burn-In Test tool at <http://www.passmark.com/products/bit.htm>
- Execute the Burn-In Test tool.
- Configure this tool by following diagram.



4. Run this tool for 24 hours



5. Check the last error description

If it shows no errors, it means the test item passes. If you see any error log in the error description column, please change the hardware. For example, if there is an error on 3D graphics, please install a new VGA card and do Burn-In Test again until no errors.

Appendix 1 Checklist

Test NO.	Theme	Step	Description	check
001	Start	1	Prepare motherboard and VGA card according to minimum hardware requirement	<input type="checkbox"/>
		2	Prepare CPU and RAM according to minimum hardware requirement	<input type="checkbox"/>
		3	Install CPU, RMA, VGA card and capture on motherboard	<input type="checkbox"/>
		4	Boot PC and enter BIOS	<input type="checkbox"/>
		5	Disable C3 state	<input type="checkbox"/>
		6	Set CD ROM as prior boot sequence	<input type="checkbox"/>
002	Setting	1	Disable Windows update	<input type="checkbox"/>
		2	Disable firewall	<input type="checkbox"/>
		3	Disable screen saver and save mode of power options	<input type="checkbox"/>
		4	Setup time and date on OS	<input type="checkbox"/>
		5	Disable "synchronize with an internet time server"	<input type="checkbox"/>
003	MB driver	1	Install driver of motherboard	<input type="checkbox"/>
		2	Install latest chipset driver on Intel website http://www.intel.com/	<input type="checkbox"/>
004	VGA driver	1	Install driver of video card	<input type="checkbox"/>
		2	Update driver to latest one from Nvidia or ATI website Nvidia: http://www.nvidia.com/content/global/global.php Ati: http://ati.amd.com/	<input type="checkbox"/>
005	RAM test	1	Check the memory size of RAM	<input type="checkbox"/>
		2	Execute memtest.exe to test RAM	<input type="checkbox"/>
006	BurnIn Test	1	Execute Burn-In Test	<input type="checkbox"/>
		2	click "Select tests to perform and their duty cycle"	<input type="checkbox"/>
		3	"Test configuration and duty cycles" -> CPU MATH -> drag to very right -> click "OK"	<input type="checkbox"/>
		4	"Test configuration and duty cycles" -> CPU SIMD ->drag to very right -> click "OK"	<input type="checkbox"/>
		5	"Test configuration and duty cycles" -> RAM -> drag to very right -> click "OK"	<input type="checkbox"/>
		6	"Test configuration and duty cycles" -> Video -> drag to very right -> click "OK"	<input type="checkbox"/>
		7	"Test configuration and duty cycles" -> 2D Graphics -> drag to very right -> click "OK"	<input type="checkbox"/>
		8	"Test configuration and duty cycles" -> 3D Graphics -> drag to very right -> click "OK"	<input type="checkbox"/>
		9	"Test configuration and duty cycles" -> Sound -> drag to very right -> click "OK"	<input type="checkbox"/>
		10	"Test configuration and duty cycles" -> Auto Stop after ___ Mintues or ___ Cycles -> all set "0" -> click "OK"	<input type="checkbox"/>
		11	click "Start tests" to run for 24 hours	<input type="checkbox"/>
		12	Test result	<input type="checkbox"/> Pass <input type="checkbox"/> Fail