

## Frequently Asked Questions on ANS-9010/9010B 2009-0312

This FAQ is the basic reference for ANS-9010/9010B user who have questions during using. It should help to solve most of the issues one might encounter. For questions that beyond this FAQ, please fill out the form in appendix B with required information, and mail it to [support@acard.com](mailto:support@acard.com). We will answer your question as soon as possible.

For your convenience, the FAQ is divided with different categories. Please refer to relative chapter for your issues.

CH1. Memory module installing and using

CH2. CF installing and using

CH3. Backup and Restore

CH4. Connectors/buttons

CH5. Power and Battery

CH6. Performance

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CH8. Terms of model number of ANS-9010/9010B

### CH1. Memory module installing and using

Q1-1. How do I choose memory modules for my ANS-9010/9010B? Is there any suggestion?

A1-1: According to the specification, please use UNBUFFERED and NONREGISTERED memory modules, with or without ECC. Please refer to compatible list on the web site, which is: [http://dl.acard.com/download/compatibility%20list/ANS-9010\\_9010B%20compatible%20list.pdf](http://dl.acard.com/download/compatibility%20list/ANS-9010_9010B%20compatible%20list.pdf)

Q1-2. The memory modules I have are not in the compatible list. Are they compatible with ANS-9010/9010B or not? How do I judge it?

A1-2: Most of the memory modules for sale that support standard DDR2 are supported by ANS-9010/9010B. To make sure the compatibility of memory modules with ANS-9010/9010B, it is recommended to use ACARD's SSD Utility to test and verify each single memory module that is going to apply to ANS-9010/9010B. The utility could be downloaded from: [http://dl.acard.com/download/SSD/SSD\\_AP\\_v1.01.zip](http://dl.acard.com/download/SSD/SSD_AP_v1.01.zip)

Q1-3. Is there anything I should know before I install memory module(s) to ANS-9010/9010B?

A1-3: Make sure both SATA power and the battery are DISCONNECTED before installing any memory module.

Q1-4. Do I have to install memory modules to each memory slot of ANS-9010? There are 8 of them.

A1-4: ANS-9010 works as long as any one of the memory slots is installed with memory module. The amount of memory modules may be applied, from 1 to 8, is all up to the user.

Q1-5. I have only 4 memory modules to apply on ANS-9010/9010B. Do I have to install them in particular order?

A1-5: Memory modules could be installed in any memory slot in ANS-9010/9010B with any order, as long as they are identical. The total capacity of the RAM disk is the sum of all the applied memory modules.

Q1-6. Can I install memory modules with different brands/models/capacities to one single ANS-9010/9010B?

A1-6: It is STRONGLY NOT RECOMMENDED. By doing so, the users are on their own risk to encounter unexpected situations, which may be also undesirable.

Q1-7. My ANS-9010 is setup as Dual SATA mode. If I install two memory modules of 2GB capacity

on one side (4 slots) of the ANS-9010, and four memory modules of 4GB capacity on the other side, would my computer detects a disk driver as 4GB and the another as 16GB in capacity?

- A1-7: First of all, it is NOT RECOMMENDED to install memory modules in different capacity to one single ANS-9010. However, the two disks would equally divide the size of the total capacity of the applied memory modules. In this case, the computer would detect 2 disks, both are 10GB in capacity.
- Q1-8. I have 8 memory modules that are in the compatible list in ACARD website. After I install them to my ANS-9010, the capacity is correctly presented. But I am not able to read from, or write to, the RAM disk. Actually, I am not even able to format the disk. Why is that? Do I have a nonfunctional ANS-9010?
- A1-8: This may cause by improper-install or nonfunctional memory modules, even there might be only 1 of the 8 memory modules has problem. Please remove all of the memory modules and reinstall them to solve the problem. If the problem still exists, please install the memory modules one by one to quarantine out the one causes such problem.
- Q1-9. My ANS-9010/9010B presents during computer booting up, but I can't not see the disk in "My Computer" window. Why is that?
- A1-9: ANS-9010/9010B works with your computer as a regular HD does. You need to initialize and format the disk before using it. Please make sure you have done so on your ANS-9010/9010B. If the problem still exists, please connect the SATA port with one regular HD to make sure the connection is OK. Or, you may fill in the form in Appendix B and mail it to [support@acard.com](mailto:support@acard.com). We will answer it as soon as possible.

## CH2. CF Installing and using

- Q2-1. How do I choose memory modules for my ANS-9010/9010B? Is there any suggestion?
- A2-1: To make sure the CF you have could backup the data in ANS-9010/9010B fast, it is recommended to use CF that supports DMA. Please refer to the compatible list in web site, which is:  
[http://dl.acard.com/download/compatibility%20list/ANS-9010\\_9010B%20compatible%20list.pdf](http://dl.acard.com/download/compatibility%20list/ANS-9010_9010B%20compatible%20list.pdf)
- Q2-2. The CF I have is not in the compatible list. Is it compatible with ANS-9010/9010B or not? How do I judge it?
- A2-2: Please have some data in your RAM disk, plug in your CF, and then power off the computer. ANS-9010/9010B would automatically backup everything in the RAM disk to CF. After it finishes, Turn on the computer to have the ANS-9010/9010B restore everything back from the CF. After the backup finishes, checking the data in the disk to verify if everything backup and restore well.
- Q2-3. I install eight memory modules of 2GB capacity to my ANS-9010. It is 16GB in total. Can I backup the RAM disk with a CF of 16GB capacity?
- A2-3: Yes and No. It depends on whether the memory modules support ECC or not. Most of the memory modules for sale do not support ECC. In such case, ANS-9010/9010B will detect it, and automatically enable build-in ECC-Emulation function to protect data as server-level memory modules do. ECC-Emulation function reserves RAM disk space, as much as 1/9 of the totally capacity, to implement such activity. Therefore, the volume of the disk space needed to be backup is less than the capacity of a 16GB CF. If the memory modules that applied in ANS-9010 support ECC, the build-in ECC-Emulation function would be disable. Thus, the volume of the disk space needed to be backup would be larger than capacity of a 16GB CF. In such case, it is recommend to use CF that larger than 16GB to backup such RAM disk. Please refer to Appendix A for the detail of calculating on media capacity.

- Q2-4. I plugged a CF into my ANS-9010. How do I take it out?  
A2-4: If the black stick next to the CF slot is stretched out, please press it back to eject the CF. If the stick is not stretched out, please press on it to pop it out, and then push it back to eject the CF. If neither one of the methods works, please take away the top of ANS-9010, and press above the CF with one finger to carefully slide out the CF.
- Q2-5. I plug a CF into my ANS-9010/9010B, but neither the backup light nor the restore light gets on. Does this mean the CF does not work with my ANS-9010/9010B?  
A2-5: This means the ANS-9010/9010B does not detect the presented CF. This may be caused by more than 1 reason. Please check them up and try to correct the problems as below:  
1. The CF is not plugged well into the slot. Please make sure it is plugged all the way in.  
2. The pin(s) in the CF slot is bend. Please open the cover on top to check if it is the case.  
3. The CF is nonfunctional. Please replace it.
- Q2-6. I plug a CF into my ANS-9010/9010B. The backup light is always on, but the restore light is on for only 5 seconds. Does this mean the CF supports backup only, but doesn't support restore?  
A2-6: No, that's not the case. ANS-9010/9010B does this on purpose for uses own protection, in case of accidentally overwrite data in RAM disk. As safety automatically backup/restore scheme come with ANS-9010/9010B, the CF is always ready to backup data from RAM disk while the backup light is being on, yet manually restore can only be executed in 5 seconds after a CF presents. Restore data to RAM disk will overwrite everything in it, which effects computer accessing on the disk. Users are encouraged to be familiar with relative knowledge before restoring data manually.

### **CH3. Backup and restore**

- Q3-1. For my ANS-9010/9010B, I would like to try backup/restore function on hand by myself, but I have no idea how it works. Could you explain to me in detail?  
A3-1: Backup/restore function of ANS-9010/9010B is different from general idea of data backup/restore. ANS-9010/9010B backup disk image to CF right after power off, and have the disk ready to use when power on. Manually operate backup/restore is not necessary at all. For the advanced uses who wish to apply it for their own operation, please refer followed paragraph: The detail of the methods of manually/automatically backup/restore.  
Automatically backup/restore: Assume a CF presents before ANS-9010/9010B was powered off, the automatically backup would active at 30 seconds after power off. After finishing backup, ANS-9010/9010B would power off itself too. (The period of time of backup depends on the total capacity of RAM applied to 9010, and the speed of the CF.) All the lights beside battery indicator would be off. When the computer is powered on again, ANS-9010/9010B would check CF if it has data ready for restoring. If so, automatically restore would be active to restore data to RAM disk from CF.  
Manually backup/restore: While ANS-9010/9010B is running, "Backup to CF" light is always on. Press on the button for 3 seconds to active backup function. "Restore from CF" only functional during 5 seconds after CF presents, while the "Restore from CF" light is on. Press on the button for 3 seconds to active restore function. This may effect computer I/O on the disk. Users are encouraged to be familiar with relative knowledge before restoring data manually. The light flashes during the process of backup/restore. It flashes faster and faster as the process is closer and closer to 100%, and will be off as the process finishes.
- Q3-2. I plug in a CF of 16GB capacity to my ANS-9010/9010B, but the "Backup to CF" LED shows red. What does this mean? Why is it red? How to fix it?  
A3-3: That means the CF in nonfunctional or its capacity is less than the volume of ANS-9010/9010B. Please refer to FAQ 2-3. It is recommended to use CF of 24GB capacity or larger to backup data for ANS-9010/9010B that applies ECC memory modules of 16GB

capacity in total. Otherwise, backup function would not work due to the capacity of the CF is less than the size of the RAM Disk it suppose to backup.

- Q3-3. I apply 8 memory modules of 2GB capacity to my ANS-9010, and set it up as Dual SATA mode. I see 2 RAM disks in my OS. Both are 7.1GB in capacity. Can I backup those 2 disks with one CF of 16GB capacity? Or should I backup them separately with 2 CF of 8GB capacity? This troubles too much.
- A3-3: One single CF of 16GB can successfully backup those “2 disks” together. On the other hand, 2 CF of 8GB capacity do not work in this case. Although there are 2 logical disks, they are physically in one single ANS-9010. A CF of 16GB capacity can successfully backup this physical RAM disk, but a CF of 8GB capacity obviously cannot backup a RAM disk with 16GB physical capacity in total.
- Q3-4. I apply 8 memory modules of 2GB capacity to my ANS-9010. That is  $8 \times 2 = 16$ GB in total. I also apply a CF of 16GB to it. But neither backup nor restore works. Why is that?
- A3-4: In this case, the volume of the RAM disk is actually larger than the capacity of the CF. Backup/restore does not work under such situation. It is recommended to use CF of 24GB capacity or larger to backup an ANS-9010/9010B that applied ECC memory modules with 16GB capacity in total. Please refer to Appendix A for the detail of calculating on media capacity.
- Q3-5. Do I need a 24GB CF to backup my ANS-9010 that applied 8 of 2GB non-ECC memory modules? The unit for RAM capacity(1K=1024B) is larger than the unit for CF capacity (1K=1000B)!
- A3-5: It doesn't have to. ANS-9010 will detect the applied non-ECC memory modules, and automatically enable build-in ECC-Emulation function to protect data as server-level memory modules do. ECC-Emulation reserves space, as much as 1/9 of the totally capacity of the RAM disk, to implement such activity. Therefore, the volume of disk space, which is needed to backup to CF, is less than capacity of a 16GB CF. The data in the disk could be backup successfully.
- Q3-6. I use 2 ANS-9010/9010B with a SATA RAID adapter to build a RAID 0. Can I back up both ANS-9010/9010B with one single CF?
- A3-6: No. Each ANS-9010/9010B is a standard alone device. It cannot access other RAID members through RAID controller. Users have to have 1 proper CF for each ANS-9010/9010B to backup the disk.
- Q3-7. I apply eight 2GB memory modules to my ANS-9010, but I only have about 4GB data in the RAM disk. Can I backup it with a 8GB CF?
- A3-7: No. ANS-9010 backup the image of whole RAM disk, not only the files in it. The capacity of applied CF have to be larger than the sum volume of applied memory modules in ANS-9010, but not just larger than the total size of files size in the RAM disk. In this case, the “Backup to CF” light will always be red during the capacity of the CF is not big enough to back up the RAM disk.
- Q3-8. Do I have to use Ghost or something like that to restore my data from a CF to ANS-9010/9010B?
- A3-8: No. ANS-9010/9010B automatically or manually restore data from a CF by itself without 3rd party involves.
- Q3-9. How long does it take to restore data to ANS-9010/9010B from a CF? Should I wait until the restore finishes before boot it up?
- A3-9: Time required by restoring is varied. It depends on the capacity of RAM disk and the speed of CF. For example, it takes about 7 minutes to restore data in 16GB from a CF with 233 speed. When booting up from an ANS-9010/9010B while restoring is in progress or not even start yet, the system would directly access to the CF during restoring. Thus, ANS-9010/9010B

can be boot up during or without data restoring. However, in such case, the booting up time is about the time that booting up from a regular HD because the system accesses to a CF instead of RAM modules. Users would enjoy the extreme fast I/O speed after the data restoring finishes.

Q3-10. I backup OS to my ANS-9010/9010B and shut it down. I did see it backup to CF, but I don't see it restore my data when I turn on the computer again. I also fail to boot it up. Why is this?

A3-10: It may be caused by unsuccessful backup. Please check up battery indicator before power off the system, and make sure it has enough electrical power to backup the RAM disk. After an ANS-9010/9010B has been being power off for long time, please fully recharge the exhausted battery to avoid power failure during backup. Yet, applying an External Power Kit could guarantee that the battery has at least 80% electrical power in capacity all the time. Therefore, the battery would have enough power to backup data after being powered off.

Q3-11. After I backup my data in ANS-9010B RAM disk to a CF, can I read it by card readers?

A3-11: Yes. data that backup from RAM disk to a CF, including the disk partition, could be read from card readers.

Q3-12. I setup my ANS-9010 as Dual SATA mode, and build a RAID 0 on them via a SATA RAID adapt. After I backup the data in my ANS-9010 to a CF, Can I read it by card readers?

A3-12: It takes the original RAID controller to access the RAID it built. Thus, although an entire RAID is backup to a CF, the data in the RAID is non-decipherable without the original RAID controller.

Q3-13: ANS-9010 manual says "Backup to CF" light is always on, which means it is always ready to backup. Can I backup while the disk is busy in I/O? If the disk data is changed after I back it up, would the changed data be backup too? Is this the right way to use it? How should I do for it?

A3-13: You may do so, but it is NOT RECOMMENDED. The backup data is the image of the disk at the particular moment. Users would have to backup again for data altered after the moment. Moreover, before manually backup, please make sure the data in RAM disk is complete, with the data in system cache written back. Otherwise, the backup data may be incomplete; what restores from it would be incomplete too. It is recommended to allow ANS-9010 performs backup/restore by itself.

Q3-14: The manual of ANS-9010 says I could restore data from CF in 5 seconds after I plug a CF in. But it doesn't work no matter how many time I press the button. Why is that? BTW, does data restoring overwrite the data in RAM disk?

A3-14: To perform manually restore, users have to do it in 5 seconds after a CF presents, and would have to hold the button for 3 seconds to start the process. Restoring data from a CF will overwrite data in RAM disk, which may effect computer I/O on the disk. Users are encouraged to be familiar with relative knowledge before restoring data manually.

Q3-15: Does a CF has to always stay in the CF slot for doing automatically backup? Could I plug in a CF after power off ANS-9010/9010B to backup data?

A3-15: It is recommended to always keep a CF in the CF slot. ANS-9010/9010B switch into power-save mode 30 seconds after power off. In such mode, the battery only supply electrical power to memory modules to preserve the data, but not to the other parts of the controller. ANS-9010/9010B will NOT detect CF under such situation, neither would it perform backup. The battery would be exhausted after power off for 4 or 5 hours. The data in the RAM would be evaporated. It is recommend to always have a CF in the CF slot to avoid data loss.

Q3-16. I boot up from my ANS-9010/9010B. According to the Quick Guide, it automatically performs backup/restore during power on and power off. If I shutdown my computer right after I turn it on, which means I power off ANS-9010/9010B during restoring process, what would happened? How does ANS-9010/9010B handle this?

A3-16: ANS-9010/9010B performs restoring during booting. Although it is powered off during restoring, it would still complete the process rely on battery's power supply. After the process finishes, ANS-9010/9010B would detect that it has been powered off, and perform backup as regular operation. Thus, what have been changed on the disk during computer booting up would be completely back up to the CF.

Q3-17. My ANS-9010 cannot boot up during restoring, but have to wait until restoring finishes. Why is that?

A3-17: This is caused by the firmware of old version(v0.18). Please download and install the latest firmware to solve it, which is:  
[http://dl.acard.com/download/SSD/9010&9010B\\_FW109.zip](http://dl.acard.com/download/SSD/9010&9010B_FW109.zip)

Q3-18. I installed 16GB non-ECC memory modules to my ANS-9010, but now I want to replace them with 32GB memory modules. Will I see a 32GB disk in my computer? Or it would still be 16GB? Can I backup the 32GB RAM disk with the 32GB CF that I used for my 16GB RAM disk? If I did backup my 16GB RAM disk to my CF, can I restore the data to the new 32GB RAM disk? Will I see a 32GB disk in my computer? Or it would still be 16GB?

A3-18: The computer would detect a disk of 32GB capacity, and it could restore data that backup from 16GB RAM disk to CF. But "My computer" window would only show a disk in 16GB capacity. Please use "disk manager" to build up partition for the expand disk space.

#### **CH4. Connector and buttons**

Q4-1. There is a white 4-pin connector on the back of ANS-9010/9010B. Is it functional? Can I use it to output signal of, for example, power off?

A4-1: The connector is reserved for internal use. It is not useful for users. Please do not connect anything to it. User who has special request is recommended to directly contact ACARD with the request form in Appendix B.

Q4-2. There is an button beside the battery in ANS-9010/9010B. What is it for?

A4-2: It is for discharging the battery. Totally power off is required during Install/remove memory modules in ANS-9010/9010B, including both electrical power from SATA power connector and battery. Therefore, besides disconnect SATA power connection, users who want to safety remove/install memory modules would need to either disconnect battery or push the discharge button to totally off the power to ANS-9010/9010B. Please do not push it during regular using.

Q4-3. In single SATA port mode, is it SATA Port 0 or SATA Port 1 I should connect to? Would it be a problem that I connect a SATA cable to the one unused?

A4-3: It is SATA Port0 that needs to connect while it is in single SATA port mode. In such case, it is OK whether SATA Port1 is connected or not. However, it is recommended to disconnect it.

Q4-4. What is the timing and method to do backup/restore on ANS-9010/9010B?

A4-4: Please refer to FAQ A3-1.

#### **CH5. Power and battery**

Q5-1. How long can ANS-9010/9010B hold its data after the main electrical power supply is off? Can I access data in ANS-9010/9010B during that period?

A5-1: Assume the battery was fully charged, an ANS-9010/9010B could keep up to 4 to 5 hours. During the time that main electrical power supply is off, ANS-9010/9010B is supplied by its own battery to hold the data only, and that's it. The battery doesn't supply for data accessing during power off.

Q5-2. How long does it take to fully charge an battery-exhausted ANS-9010?

A5-2: It takes about 1 to 1.5 hours.

Q5-3. The manual says the battery has warranty for 12 month. Does that mean I have to replace the battery once a year?

A5-3: A lithium cell could be recharged for about 500 times, generally speaking. Assume an ANS-9010/9010B is discharged and recharged once a day, It is recommended to replace the battery ever year. Applying External Power Kit can reduce the times of battery discharge/recharge, and extend battery lifetime. In that case, the timing of replacing the battery depends on the condition of the battery.

Q5-4. My ANS-9010/9010B lights 2 cells on Battery Capacity Indicator. How long will the battery hold?

A5-4: It is not linear relationship between battery capacity and the indicator. 2 cells on the indicator means the capacity of the battery could hold for another hour or even shorter. However, it is recommended to recharge the battery, or backup the data, in time.

Q5-5. What does ANS-9010/9010B need on electrical power voltage? Does it need all 12V, 5V, and 3.3V on SATA power?

A5-5: ANS-9010/9010B consumes electrical power of 12V/2.5A. It doesn't need the other kind of voltage on SATA power connector. ANS-9010/9010B can work with or without them.

Q5-6. Do I have to fully recharge the exhausted battery before using my ANS-9010/9010B? If I shutdown my computer before the battery is fully charged, would it effect the data in the disk?

A5-6: ANS-9010/9010B works without battery fully charged, as long as power keep being supply from SATA power connection, which would also recharge the battery during using. However, it is recommend to fully recharge the battery before shutdown the computer to could avoid data losing.

Q5-7. Do I have to always connect ANS-9010/9010B to its battery? What would happened if I don't?

A5-7: If the data in the disk does not need to backup, whether the battery is connected or not effects nothing. However, it is recommended to always connect to the battery in case data losing during power off.

Q5-8. If I use the External Power Kit, does that mean I don't have to connect my ANS-9010/9010B to computer's power supply? If so, would the computer power on/off effect the disk?

A5-8: This is like to have a computer work with a HD that connects to another power supply. In that case, turn the computer on or off does not effect the disk at all. The only difference is that ANS-9010/9010B does not have to backup/restore for computer being on/off during the External Power Kit keeps supply power to the disk. Moreover, it is recommend to connect External Power Kit to UPS if the computer connects to UPS too.

Q5-9. Can External Power Kit support 2 or more ANS-9010/9010B at once?

A5-9: External Power Kit is designed to supports only one ANS-9010/9010B at a time. Any method that branch it to support more than 1 disk VOID its WARRENTY.

Q5-10. Do I have to purchase External Power Kit for my ANS-9010/9010B? What difference does it make?

A5-10: External Power Kit provides the same kind of safety as system power supply does. Although it is optional, the power kit save ANS-9010/9010B from backup/restore during computer being on/off. Users who don't concern data safety of their ANS-9010/9010B do not need External Power Kit.

Q5-11. Many manufactures of electrical devices suggest the customer taking away the batteries when the devices expects long-time power off . Do I have to do the same for ANS-9010/9010B? If so, for how long power-off expecting should I take away the battery? If I don't take it away, would ANS-9010/9010B keeps consumes power from the battery during power off?

A5-11: Yes. Because of the nature of lithium cells, it is recommended to take away the battery when expecting ANS-9010/9010B to power off for 2 weeks or even longer. Moreover, its battery needs to be kept at a dry place with low temperature. This may extend the lifetime of a battery.

Q5-12. How do I know my ANS-9010/9010B is power-off or not?

A5-12: Power light being off means the main power of ANS-9010/9010B is power off. It would then switch to backup or power-saving mode. However, before installing/removing memory modules, please remove POWER CONNECTOR OF BATTERY or push THE BUTTON NEXT TO BATTERY to totally shutdown ANS-9010/9010B, besides disconnect the SATA power.

Q5-13. The manual says ANS-9010/9010B power itself off after finishing backup. But the battery capacity indicator on my ANS-9010/9010B is on after backup finishes. Is that the way it suppose to be? Does that mean the data in the RAM disk is still there?

A5-13: Yes, it is the way it suppose to be. Battery capacity indicator shows the electrical power that the battery still has. However, the battery do not supply power during power off if the data has been backup to CF. The data in RAM would be evaporated. The battery supply power to the memory modules and keep up the data only when a CF is not present or the present CF malfunctions.

## CH6. Performance

Q6-1. The performance report posted on ACARD's web site shows the efficiency as 170MB/s on read and 140MB/s on write. But my test shows 110MB/s on I/O, why is that? I use ASUS mother board with ICH6R!

A6-1: According to the specification of ICH6R, the SATA transportation is 1.5Gbps. Therefore, the performance is only about 110MB/sec.

Q6-2. I tested the performance for my ANS-9010/9010B as 170MB/s on read and 140MB/s on write. After I connect it to a mother board with ICH10R and build a RAID 0, I got the performance as 170MB/s on read and 280MB/s on write. Why is the performance on read doesn't boost up at all?

A6-2: This is caused by the firmware of old version(v0.18). Please download and install the latest firmware to solve it, which is:  
[http://dl.acard.com/download/SSD/9010&9010B\\_FW109.zip](http://dl.acard.com/download/SSD/9010&9010B_FW109.zip)

Q6-3. Some times my ANS-9010/9010B could have the performance as 170MB/s on read and 140MB/s on write, but sometime I could only get as good as 110MB/s. Why is the performance unstable? Is my ANS-9010/9010B malfunction?

A6-3: This is normal. It takes 3 to 5 minutes for ANS-9010/9010B to initialize ECC function to confirm each single memory modules works well. During this period of time, the reading of the performance during the period of time is lower than regular operation, which is in fully speed. Please test the performance after for 3 to 5 minutes from booting up to avoid the bias.

Q6-4. My ANS-9010/9010B boots up as slow as a regular HD does, but it will have normal I/O speed 10 minutes later. Why is that?

A6-4: This is because the data in RAM disk is evaporated during power off, and restoring from the CF while booting up. Because the computer direct access to the CF since the restoring is not complete yet, the I/O speed would be lower than it suppose to be. It is recommended to apply External Power Kit for users who are bothered by this symptom.

Q6-5. Would it lower the performance if I use DDR667 memory modules on my ANS-9010/9010B instead of using DDR800?

A6-5: The I/O speed of ANS-9010/9010B is almost reach the limitation of SATA transportation. The timing of memory almost has no affect on the performance.

- Q6-6. Does it make any difference on performance if I use non-ECC memory modules instead of ECC memory modules? I afraid ECC-Emulation Function that active for non-ECC memory modules would effect the performance of the RAM disk!
- A6-6: ECC-Emulation Function of ANS-9010/9010B is implemented by hardware. After the initializing, the ECC-Emulation function is running on circuit as ECC memory modules do. The performance is not effected. Please applying ECC/Non-ECC memory modules without worry.
- Q6-7. I use HD Tune to test the performance on ANS-9010. The reading is unstable, and the total performance is lower than the performance report posted on ACARD's web site so much!
- A6-7: This is the nature of HD Tune. Please adjust the Block Size to 256KB or even larger, which could be set under Options->Benchmark->Block size. You can also adjust Block Size to 64KB or even smaller for RAID under ICH10R, instead of the default Block Size as 128KB. Those may help to have more accurate reading on performance test.

## CH7. Capacity

- Q7-1. I install 8 ECC DDR2 memory modules of 2GB to my ANS-9010. That is 16GB in total. I do see ANS-9010 shows 16384MB on it. But when I replace them with non-ECC memory modules with the same capacity, it shows only 14563MB. Why is that?
- A7-1: Most of the memory modules for sale do not support ECC. In such case, ANS-9010/9010B will detect it, and automatically enable build-in ECC-Emulation function to protect data as server-level memory modules do. ECC-Emulation function reserves RAM disk space, as much as 1/9 of the totally capacity, to implement such activity. Therefore, the volume left for the disk is 14563MB. If the applied memory modules support ECC, ANS-9010/9010B will disable its own ECC-Emulation function. Therefore, the size of the disk will be 16384MB. Please refer to Appendix A for the detail of calculating on media capacity.
- A7-2. I use AMI BIOS. My ANS-9010 is detected as 14563MB in Single SATA mode. But under Dual SATA mode, it turns into 2 RAM disk of 0 MB. Why is that?
- A7-2: This is caused by the firmware of old version(before v1.01). Please download and install the latest firmware to solve it, which is:  
[http://dl.acard.com/download/SSD/9010&9010B\\_FW109.zip](http://dl.acard.com/download/SSD/9010&9010B_FW109.zip)
- A7-3. I have my ANS-9010 connect to a SAS RAID adapter. The RAM disk is detected as 28.4GB, which is correct. But in Dual SATA mode with RAID 0, the capacity is detected as 28GB in total . Is this defect of Dual SATA mode?
- A7-3: RAID controller reserve space to store parameters, such as RAID member identity and other arguments. It doesn't matter the RAID member are HD, RAM disks, or other kind of medias. Moreover, most of RAID controllers demarcate RAID members in fixed size as 100MB, 1GB, or 10GB, and drop off the remnants. The "2 disks" would be 28.4GB in total if they are used as regular disks instead of RAID members. However, when ANS-9010/9010B is used as a RAID member, please confirm RAID parameters in case the shown capacity is less than expected size.

## CH8. Terms of model number of ANS-9010/9010B

Format:

ANS-9010B\_ABCDEFGHI\_Q\_XXYY\_ZZZ or ANS-9010\_ABCDEFGHI\_Q\_XXYY\_ZZZ

Field A~H: represents the DDR size in slot 1 ~ 8

value -->	0: 512 MB
	1: 1GB
	2: 2GB
	3: 4GB
	4: 8GB
	N: module not exist
	F: module fail with invalid SPD or invalid memory type

Field I: represents the ECC type

value -->	0: DDR2 RAM built-in ECC function enabled
	1: ANS-9010/9010B ECC emulation function enabled

Field Q: represents the SATA port number

value -->	0: Host 0
	1: Host 1

Field XXYY\_ZZZ: represents the FW version

## Appendix A Calculating of RAM and CF

Example: An ANS-9010 that applies 16GB Non-ECC memory modules.

	Actual capacity of "16GB"	Formula
Total volume	17,179,869,184 Byte	$16\text{GB} = 16 \times 1024\text{B} \times 1024\text{B} \times 1024\text{B}$
Space reserved for ECC-Emulation function, as much as 1/9 of the total volume	1,908,874,354 Byte	$17,179,869,184 \text{ B} / 9$
Usable capacity. Taking off reserved space	15,270,994,830 Byte	$17,179,869,184 \text{ B} - 1,908,874,354 \text{ B}$
Volume of CF	16,000,000,000 Byte	$16\text{GB} = 16 \times 1000\text{B} \times 1000\text{B} \times 1000\text{B}$

According to the formula of the table above, volume of a RAM disk that applies 16GB Non-ECC memory modules is less than the capacity of a 16GB CF. Therefore, it is OK to backup 16GB RAM disk to a 16GB CF.

However, when apply ECC memory modules instead of non-ECC memory modules, the usable capacity is the sum of all the memory modules, which is larger than the capacity of a 16GB CF. Please back it up with CF in larger capacity, such as 24G or 32G.

## Appendix B Customer Request Form

Email Address: [support@acard.com](mailto:support@acard.com)

Website: [www.acard.com](http://www.acard.com)

Model Name*	ANS-9010	Firmware Version*	1.09
Serial Number*	ex: AN12345678		
System Configuration			
Motherboard/System model*			
SATA host controller model*			
SATA host BIOS version			
Other I/O card			
Operating System*			
DDR2 DIMM brand & model*			
CF card brand & model*			
Utility Version			
Problem description*			

**\*Required Fill**