

# WersiClub UK.Focus

## The relevance of CPU and RAM in a Wersi Instrument

By Bill Gray

With the advent of the trials available in the R41 update, many of you may have been perturbed by the mention in the download notes that the Franz Lambert sounds may cause problems with some CPU, therefore I have put together this article to explain the relevance of CPU and RAM in a Wersi instrument.

The first thing we need to do is explain how Windows works. (The OS which Wersi uses on its instruments)

### **Memory**

When a program is launched, all the necessary information is loaded from the HDD (Hard Disk Drive) into the RAM of the computer to allow the program to run, (The amount of RAM required is determined by the size of the Program and the information it needs. (In the case of your **Wersi**, this is the OAS program and the sounds/styles etc)

All computers have a finite amount of RAM, and when this gets full, a way has to be found to shuffle the information around without crashing the system, and this is done by transferring some of the information that is not directly being used at the time to the HDD, thus freeing up RAM for the new information, (The space set aside on the HDD for this information is called Virtual Memory) when the information that has been stored on the HDD is required again, other currently unused information is transferred from the RAM to the HDD to make way for the information that is required from the HDD, that way you can run many more programs and information than the RAM alone can handle, the downside (There's always one) is that transferring and swapping information from the HDD to RAM is very slow, and so is not suitable for use in Real Time Performance. (Seasoned computer users may have heard of something called Disk Streaming to get round this; however this is not directly relevant to the OAS system, but is used extensively with VST Instruments, and would require a separate article to explain how it fits into the equation)

In the **Wersi**, access to sounds/styles etc must be pretty much instantaneous, and therefore the use of Virtual Memory is pretty much a NO NO, (This is why when you load sounds (Akai etc) the amount of free RAM (Memory) is shown so as not to go over the top) The main flaw with this though, is that while the Wersi will not allow you to load in more sounds than it can safely handle, it bases its information on the current activated options, however if you then activate these options (Or load new options in an update) when the RAM is already towards its top limit, (All options require additional RAM) problems can occur as Windows tries to use virtual memory to get them to work, this means you may get temporary freezes and note drop outs due to the slow HDD transfer speeds. (This is why RAM is very important to the OAS system)

To alleviate this problem is simply a matter of adding more RAM (Which is cheap these days) so that Virtual Memory use is minimal. (I would recommend a minimum of 2GB for all OAS 7 users who have a number of options activated, (Doubly important if you wish to load additional sounds) so as to allow the system to breathe)

**NOTE:** VST instruments are programs in there own right, and these also need RAM space to run.

### **CPU**

This is the heart of the system, and makes all the calculations necessary to achieve a result. (Please also remember the CPU has to run Windows and any VST Instruments/programs as well as OAS)

EG When you select a Total Preset on your Wersi, as well as selecting the sounds/styles etc, it also has to calculate all the new settings required to achieve that sound, and which takes a finite amount of time to do.

The more sophisticated the voices are, (Processing may need to continue when the voice is playing and not just when it is selected) the more calculations (Processing) the CPU has to do, and if it gets overloaded there will be a delay in the processing, causing a delay in the operation of the instrument.

The faster the CPU can operate, and/or the more that are available, then the less chance there is of delays occurring.

**TIP:** When saving a Total Preset, only tick the boxes for the items that change for that Preset, (If there is no change from the default settings, DON'T tick the box) so that the CPU has to do as little work as possible)

### **What are the Minimum Requirements**

When OAS 7 was introduced, a fundamental change occurred to the Wersi OAS system, in that on previous versions a lot of the sound processing was done on the 2 x SG10 cards, (Thus easing the strain on the CPU) however with OAS 7 only a single SG12 card is used, (Itself more powerful then the SG10 card) as a new sound engine was added to the existing sound engines, and which relied more on the CPU then previous versions.

The minimum specification for the early OAS 7 was; 1GB RAM, (Approximately 800 MB (0.8GB) was used by OAS and the standard sounds plus Windows) 2.4GHZ CPU (Assuming minimal use of other software (VST instruments etc) or 3GHZ if you wished to add more then the B4 VST.

Since then many more features and sounds have been added by Wersi, causing the 3GHZ CPU to start running towards its limit, (The new sounds and features also requiring additional RAM space) and to make matters more complicated, Akai samples (Also STS Samples) have now become common place usage with Wersi owners, meaning even further reduced RAM is available for new Wersi sounds. (Hence my recommendation for a minimum of 2GB)

**NOTE:** All sounds are loaded into RAM at start-up.

### **Is it time to upgrade?**

This depends on how you use your instrument.

If you use mainly the inbuilt Wersi sounds, with minimal use of VST Instruments and the Sophisticated Franz Lambert Sounds, then a 3GHZ CPU and 1GB of RAM will still suffice for now. (Just remember that you are now starting to push the limits)

If you use Akai samples (Or STS samples) then more RAM should be given the highest priority.

If you wish to add VST instruments, use multiple Franz Lambert sounds, and be prepared for future updates, then yes it is worthwhile to upgrade.

### **What should I upgrade to?**

The P4 range of chips were discontinued some time ago, therefore it will require a new Motherboard and RAM, as well as a CPU to upgrade. (It's also a good time to upgrade the HDD)

For approximately £150 you can obtain a quality Motherboard, AMD Dual Core CPU (I would recommend you stick with AMD as this is what OAS 7 was designed around (There shouldn't be any problems using the latest Intel CPU (Which currently are better value, run faster as well running considerably cooler) however the more variables you can eliminate the better) and 2GB RAM, with 4GB Ram and a 250GB HDD still being well under £200. (If you wish to make use of VST instruments that use Disk Streaming, then a second HDD will also come in very handy) (If you wish to use an external drive, then make sure it has an eSATA connector, as USB2 is too slow)

### **Who should do the upgrade?**

This will be determined by your knowledge, and what you feel comfortable with.

1. If you use a Wersi Service Agent, you will get a warrantee, and know that the parts used are fully compatible with OAS. Also they will be able to determine your organs existing hardware and advise you on what is required for any future programs you wish to install.
2. A Qualified computer engineer can also do the job; however it is unlikely that he will be conversant with OAS, and therefore you may still have to call Wersi if any problem relates to OAS.
3. If you are highly familiar with computers and music software, then you can do it yourself, however if anything goes wrong, or you accidentally break something, then all repairs will be on your head.

I hope the above has helped you understand your Wersi, and also made it easier to decide on whether to upgrade or not.

### **WARNING:**

**IF IN ANY DOUBT, (No matter how slight) LEAVE THE UPGRADE TO A QUALIFIED ENGINEER**

Bill