

## **Siamese System and 3-Pack**

### **What is the 3-Pack?**

The 3-Pack system is a culmination of the development of concepts going back fifteen years, please read the history section for more details. It is to the world at large a new concept in computer casing that we believe will open the doors for easy cross operating system productivity for serious computer users.

This is much more than a new computer case; it is a new way of working free from restrictions imposed by sticking to one operating system vendor. The 3-Pack case can hold as its name says, three complete computers running different operating systems in one self contained unit with all of the shared drives available to each mother board.

For most users and this will be most common is to run a high speed Windows environment combined with a fast Mac OSX Leopard system so that you have access to the best tools for the job at hand and not compromise. However, this leaves one computer system unused. So what could be better than a system running the wonderful Ubuntu or another Linux distribution for Linux server application development and testing? Alternatively if a Windows developer, you could have a high speed Vista system and the second system setup with Windows server 2003 and SQL Server 2005, and finally the Macintosh for graphical design work and using Apple's Time Machine to back everything up.

### **The User Experience**

As a user you will have a computer case about 4 inches wider than the average tower case sitting on or under your desk working quietly. Controlling this is a wireless keyboard and mouse and being viewed on a single high resolution monitor. You will swap between operating systems as you would applications and the shared text clipboard and data sharing will create a seamless environment over the built in gigabit internal network. With all of this data being created, use the Mac's Time Machine to ensure you lose nothing.

### **Why not emulate Windows on a Mac?**

This is an obvious question to ask and we shall answer it right now. Emulation or virtual machines running on a host OS, allow a reasonable experience for most users and we would encourage this. However, they are not as good as having a full machine with its own accelerated hardware and drivers, plus to add a new computer to the 3 pack would only cost from around £125.

For example, a Windows CAD program with a top of the range 3D graphics card can not be emulated running on a Mac using virtual machine software. Also when you run a virtual machine you sacrifice a large chunk of your system memory to run the Windows programs. We will list the good and bad points to emulation or virtual machine later. Of course, running a Mac OSX instance from Windows is at best almost impossible and illegal. But we offer a legal way of running the two together.

### **Water Cooling!!**

The 3-Pack is the first computer system that not only has up to three motherboards built in but also can have water cooling selected as an option when configuring a new system. The entire new system can be offered water cooling or just individual motherboard trays, however, be aware that for most users this is for quiet and low thermal operation with high speed components. It can also be upgraded to an over clocked system for high end computational or graphical work and quiet operation. We believe that water cooling is a vital tool to help high end users reach the performance they require. Hopefully the 3-Pack will be that solution.

The 3-Pack is an ideal way for a Windows power user to gain Macintosh power at very low cost, however, we also show you how to link a low cost Mac to you Windows machine to work in cooperation to give you the best of both worlds.

## **History**

The original Siamese System was developed by HiQ limited in **1990** by Stephen Jones and the concept was expanded by the software developed by Paul Nolan of Photogenics fame. Its original design concept was to expand the Commodore Amiga range of computers by using low cost PC hardware and Window 3.1 and later Windows 95 to drive this new hardware.

The execution was to link the Amiga via Serial or Ethernet to the Windows 95 PC and with some ground breaking software from Paul Nolan to create what we believe was one of the first types of remote window manager Software where the Amiga's desktop appeared and was accelerated by the Windows display. Doing this increased the resolution of the Amiga's native display resolution and colour modes to match the host Windows PC display.

On top of this, the text clipboard was shared between the two machines and all hard drives and removable devices were available from both machines. Also we used the Windows sound card to enhance the Amiga sound to 16 bit quality.

In reality what was created was the first Multi-OS machine, as the Amiga could run 68k Macintosh software at the time which was also boosted by the graphics, drive and sound upgrade the Siamese delivered. On top of this you obviously had a Windows 95 machine so you could run all three OS'es at the same time. This Siamese concept was very successful and was we hoped about to become mainstream.

In 1991 a meeting between HiQ ltd's Stephen Jones and Mick Tinker from Index Innovations ltd whilst at an Amiga show in Germany realised that the new PCI Amiga card from Index, and the Siamese software from HiQ could revolutionise the computer world.

After the Gateway 2000 inc. buyout of the Amiga Company in **1992** a deal was being put together between Gateway 2000, HiQ and Index which would create the world's first Windows, Amiga and MacOS computer system. Unfortunately, Gateway 2000 had a change of heart and cancelled the project, effectively killing the Multi-OS computer.

In 1999 Stephen Jones and Cluster UK ltd designed and developed the original 3-Pack and 8-Pack casing system, of which the 3-Pack was prototyped in the year 2000. Although upon its announcement it developed a lot of interest it was decided not to put into production. The 3-Pack has remained as a working test bed ever since this time and Cluster UK has been involved in Document Management and IP camera software development during this time.

In 2008 a decision was made to try and market this concept one more time, because we believe there is still a need for a Multi-OS computer system in this world wide market. We are aiming at first at a small segment of the overall market where working on software from different platforms is important and emulation or virtual machines just cannot provide a powerful enough solution.

So a new prototype is being designed using the lessons learned over the last few years and production of the first batch should be available by September.

## **Our Philosophy**

Our philosophy without trying to sound too grand is that a user just wants to run the best software for a task and that the best or most suitable software does not run on one individual operating system platform. So why not have all of the platforms you need available all of the time and not limit yourself to one platform.

Windows as a platform has probably the largest list of software available, but most people would agree that the Mac OSX has some of the most user friendly and software tools available. On top of this Time Machine is a wonderful system that alone is worth having the Mac in the Windows system for backing

up user files alone.

3-Pack came out of an original project called the Siamese System which although now the choice of name seems unfortunate, created an environment where this working together was possible. However, as you will read in the history this project stalled for a long while but is now being re-launched as we believe it is needed now more than ever.

3-Pack is a first step to hopefully show the benefits of a universal application and operating system that can run any software and supports all hardware. Whilst this is at the moment only a dream, the 3-Pack does allow the impression of this kind of working environment. This is not as far fetched as you may think, look at the Apple Mac, with its universal binary application allowing applications to be developed to run on PowerPC and Intel. If the main OS developers supported a similar system, then software manufacturers could write universal drivers and universal software that would run on any OS platform.

In reality, this is unlikely to happen but think of it like the software being the music you want to listen to and the Operating System being the MP3 player. Then you would choose the player with the best facilities and run the application you want. Software “could” be made cheaper with a single distribution for any OS but most software suppliers would not pass on the savings in practise.

In the meantime this is a pipe dream, but if the users demand it then it may happen. After all Linux came out of a need for a low cost computer vision with free software, and it has grown to be a major force by the users. However, a lack of a “Universal Application model” means that there is less money to be spent on free software. Would it not be good for people who can pay for the software for usage that generates revenue to pay more for the software, and those that use for personal usage get it cheaper along the same idea as modern budget airlines. However, that is perhaps asking too much for now.

In the meantime, our hardware is probably out of the hands of most users but we have descriptions of how to build a 3-Pack type environment using off the shelf components and multiple computer boxes. We hope it will inspire people to expect more from the big OS developers.

## Sample Systems

The 3-Pack system is the ultimate configurable computer casing system and as such each machine is as individual as your needs. So machines will not fly off a production line all the same, but come off as individually customised to your needs. Here are three kinds of configuration that may interest different kinds of user. These are only for showing potential and yes we all want the last one but that one may be a bit pricy.

SYS-ONE is the main full size ATX motherboard bay.

SYS-TWO is the secondary Micro-ATX motherboard bay.

SYS-MAC this is the built in dual core powered Mac running OSX Leopard.

All systems have a four way KVM switcher; drive sharing, text clipboard sharing and Gigabit networking across system as standard.

### Internet software developer

SYS-ONE

- Dual Core 2.4ghz, 2gb ram, 250gb drive, DVD/RW, NVIDIA G-Force series 7 onboard graphics.
- Running Windows XP Pro

SYS-TWO

- Dual Core 2.4ghz, 2gb ram, 250gb drive, NVIDIA G-Force series 7 onboard graphics.
- Running Ubuntu 8.04 Hardy Heron.

SYS-MAC

- Dual Core 2ghz, 4gb ram, 1 terabyte shared drive, 500gb Time Machine drive, DVD/RW.
- Running MacOSX Leopard 10.5

## Windows developer and designer

### SYS-ONE

- Dual Core 3ghz, 4gb ram, 1 terabyte drive, DVD/RW, NVIDIA G-Force series 8800 graphics.
- Running Windows Vista Ultimate

### SYS-TWO

- Quad Core 2.4ghz, 4gb ram, 500gb drive, NVIDIA G-Force series 7 onboard graphics.
- Running Windows Server 2003, IIS 7.0 and Microsoft SQL 2005

### SYS-MAC

- Dual Core 2ghz, 4gb ram, 250gb drive, 500gb Time Machine drive, DVD/RW.
- Running MacOSX Leopard 10.5

## Hard Core Computer Developer, oh and some games

### SYS-ONE

- Water cooled Quad Core 4ghz over clocked, 8gb ram, 2x1 terabyte drive, BR/DVD/RW, Water cooled dual NVIDIA G-Force series 9800 graphics.
- Running Windows Vista Ultimate

### SYS-TWO

- Water cooled Quad Core 3ghz, 4gb ram, 500gb drive, NVIDIA G-Force series 7 onboard graphics.
- AROS (Amiga replacement OS) maybe, but other test systems could run on this.

### SYS-MAC

- Dual Core 2ghz (maybe higher), 4gb ram, 250gb drive, 500gb Time Machine drive, DVD/RW.
- Running MacOSX Leopard 10.5

## Siamese PCI Card

When the PCI card was launched a small number of people pre-registered to get one of the first cards. Unfortunately as this never happened due to the Gateway 2000 change of heart they were let down. If you were one of them please contact us through this email address as we need to contact you.

[clusteruk@hotmail.com](mailto:clusteruk@hotmail.com)

## How to build your own 3-Pack experience

We do not expect you all to buy the 3-Pack because you may already have most of the equipment you need. We can supply the components you need to construct your own Multi-OS system or point you in the right directions. We will also supply the instructions of how we set up the machines so you can do the same, albeit with multiple computer cases.

Components you need are as follows:

- 4 way KVM switch unit (Keyboard, Video, Mouse) if it has audio then even better.
- Text Clipboard sharing software.
- Gigabit network switch unit 5 way, a 10/100 unit will be ok but you need the high speed transfer between machines to get the best out of it.
- Gigabit network cards for computers that do not have it onboard.
- A high speed large capacity drive for sharing between units.
- A large hard drive for the Time Machine.

We will assume that SYS-ONE is a fast Windows machine and SYS-TWO is a Linux unit. Obviously SYS-MAC is a new Intel based Mac, although this will work with older PowerPC versions.

Connect the Gigabit network together linking the three high speed (if you have them) Ethernet ports to the network switch. The 5<sup>th</sup> Ethernet port can link to you other network or router box.

Connect the KVM switch, ensuring that the active port, i.e. the default boot is connected to you main machine that you use the most. We use the KVM switch with the VGA port, a single USB connector and Audio out cable per computer. The only problem with these is that the Audio is not mixed together and when you switch you only hear audio from one computer.

Connect the monitor, audio, keyboard and mouse to the KVM switch.

### **Time to boot up**

Turn units on and boot as normal, you may not that the KVM switch does not tell the graphics card on all machines what the monitor is and its features. This may then make the computer drop into default modes. I have found my Windows XP does not do this but the Ubuntu does it each time and so does the Mac sometimes. The cure is to switch the KVM to the machine you are booting so it can recognise during initialisation. It does not matter if you miss it on the Mac; just use the Detect Display option in the display setup option. In Ubuntu I have found a reboot is usually needed.

Now you should be able to switch between the machines easily and see devices in the network navigation in all machines. However, what we do is connect the high speed drive to the Mac because that is likely to do the video recording work which requires high speed access. Then share this drive so that the other machine can read and write to it over the high speed network. Also the other reason is that it can then be backed up by Time Machine which as we have already mentioned is very powerful and user friendly.

So you now have a large drive to use as you My Documents folder on the Windows box and map as a network drive on the Ubuntu box, note you can change the path for My Documents to point to this path, however, this is only going to work if you always run all three machines. I usually leave my WinXP and MacOSX box running and the third gets shut down to cut down on power usage, when away I just leave the WinXP box on. It all depends on how you use your computers. Whilst I am not 100% sure about this, I believe that using the Mac as the document storage, you may get more protection against computer viruses and other threats when stored this way due to the way OSX works with files.

Now you have the basic setup for a workable Multi-OS system, as time goes on I will put more tips up here for making life that bit easier, for example what file formats to use taking into account the problems running cross platform. To give an example, the great iMovie program on the Mac will not allow Windows video formats and not even a lot of its own quick time formats which seems annoying, however, the tool itself is great.

Have fun and more later.