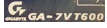


...: Introduction :...



With every Gigabyte motherboard that has previously entered the MBReview testing labs, each one has always walked away as a proven winner. Gigabyte was not purely known for breakaway performance in the past, but they sure have put the petal to the metal lately while still pleasing the enthusiast crowd with a full fledged product package at just the right price.

This time around, Gigabyte is one of the first manufacturers out of the gate with a VIA KT600 chipset based motherboard. In fact, they have no less than three versions in their product lineup with this chipset. The one we will be looking at today is the budget 7VT600-L and has integrated LAN.

Will the Gigabyte 7VT600-L be a flop? How much performance will you get from a KT600 motherboard over previous VIA chipset based motherboards? Is it worth your time to upgrade and spend hard earned money? These questions and many more will be answered for you in our review of the Gigabyte 7VT600-L.

...: Gigabyte GA-7VT600-L Specifications :...

Processor

- Socket A for AMD Athlon XP/Athlon/Duron
- 400/333/266/200MHz FSB

Gigabyte GA-7VT600-L

Written by Chris Emry

Friday, 04 September 2009 11:40

Chipset

- VIA KT600 Northbridge
- VIA VT8237 Southbridge
- Realtek RTL8101L 10/100 Mbps LAN
- Realtek ALC655 6-channel Audio CODEC
- 6 x USB 2.0 ports (VT8237 built-in)

Memory

- 3 x DDR DIMM Sockets
- Max. 3GB unbuffered PC3200/PC2700/PC2100/PC1600

Expansion Slots

- 1 x AGP 8X
- 5 x PCI
- 2 x UDMA/133/100/66
- 1 x FDD

Special Features

- STR (Suspend to RAM)
- Thermal Shutdown Protection
- Front panel audio connector

Back Panel I/O Ports

- 1 x Parallel, 1 x Serial
- 1 x PS/2 Keyboard, 1 x PS/2 Mouse
- 1 x Audio I/O (Line In, Line Out, Mic In)
- 2 x USB 2.0, 1 x RJ-45 Port

BIOS Feature

- 2Mb Flash ROM, Award BIOS
- Q-Flash and @BIOS Update Methods
- CPU/AGP/DDR Voltage Adjustments
- CPU/AGP/DDR/PCI Clock Adjustments

...: Gigabyte GA-7VT600-L Product Package :...



Gigabyte ships the 7VT600-L in a black colored box with their usual spaceship design on the top. The only way to distinguish that you indeed have this specific motherboard model is by locating a small sticker on the left side of the box, so make sure you don't end up with the wrong board at the checkout counter.



One thing that Gigabyte is well known for is the amount of items and accessories that they include with their motherboards, and the goodies that the 7VT600-L is bundled with is no exception. The package contains the usual accessories such as a user manual, an I/O backplate, the driver/software installation CD, one UDMA/133 hard drive cable and a floppy cable. Gigabyte doesn't stop there, however. They also toss in a quick installation guide, an orange sticker to affix to the interior of the computer case, a USB 2.0 bracket with two ports, two case badges of different sizes and even a UDMA/33 cable for an optical drive! Needless to say, the 7VT600-L has a very comprehensive package for a motherboard that is targeted at the budget consumer.

Nearly all of the topics in the user manual are clear and detailed with the exception of the BIOS section. Granted that some of the BIOS settings do not need an in-depth explanation as to what each one is designed to do, but some of the hidden BIOS features and settings of the 7VT600-L motherboard are nowhere to be found in the user manual. We'll explain how to enable them as well as show you these hidden features and settings later on in the BIOS section of this review.

...: Gigabyte GA-7VT600-L Software Suite :...

Gigabyte GA-7VT600-L

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After you install your operating system of choice, the next thing you will need to do is install the drivers. The 7VT600-L motherboard was just released as of the writing of this review, therefore Gigabyte provides all of the latest versions of the drivers with the included installation CD. When you first insert the disc into your CD-ROM, the main window will pop up right to the driver install window. Here, you simply click which drivers to install and you're good to go. The next window that'll be important is the Utilities window. Here you'll be able to install all of the third party software, and Gigabyte's own software onto your system. One of the nicer software inclusions within the package is that of Norton Internet Security. This software package includes the likes of Norton Anti-Virus, Personal Firewall, Parental Controls, etc. Gigabyte has also chosen to include their Windows-based BIOS writer, along with a basic system monitoring utility. Overall the Gigabyte GA-7VT600-L comes along with a great software suite for a budget board.

...: Gigabyte GA-7VT600-L Layout :...



As with most of Gigabyte's motherboards that have been released within the past year or so, you can see that their definitive color scheme is also present on the 7VT600-L. This motherboard is based on the industry standard ATX form factor, although the width of the 7VT600-L is a bit thinner than usual. This is a sure-fire way to keep the motherboard's price at an acceptable level for consumers on a low budget, but this type of design can cause a bit of frustration with some of the integrated components that are near each other on the PCB.



Gigabyte's "Yellow Thunder Socket" is oriented in a north to south direction and is clearly away from the top edge of the motherboard. This should make it a lot easier to remove a heatsink in a tightly cramped case. Gigabyte also places a clear strip of plastic under each side of the socket heatsink clips to protect the 7VT600-L if the screwdriver slips or the heatsink scrapes the motherboard during installation. We can find the cpu fan header in this area as well, which is located to at the top edge of the motherboard near the first memory bank. The four heatsink

mounting holes are not to be found around the socket, therefore you will not be able to mount water blocks or larger types of heatsink coolers to the 7VT600-L motherboard.



While we are on the topic of large heatsinks, a problem occurred when I tried to install our Thermaltake Volcano9 on the 7VT600-L. If we zoom in to the bottom left edge of the processor socket, there is a large capacitor located here that almost prevented me from using the Volcano9. It was such a tight fit, the heatsink came in contact with this capacitor and started pushing on it.



This contact happened with the capacitor near the top right area of the socket as well. After wiping the sweat from my forehead, I finally managed to get the heatsink installed properly, but it is resting against both capacitors. Be forewarned that if you are going to install any type of heatsink that is as large as our Thermaltake Volcano9, be extra careful not to damage these capacitors on the 7VT600-L during installation.



To the right of the processor socket are the three purple colored memory banks that house the DDR modules. Right between the memory banks and the right edge of the 7VT600-L are the floppy connector and the main ATX power supply connector. The extra 12V ATX connector is not present on the 7VT600-L, so users should not have to worry about purchasing a new power supply.

...: Gigabyte GA-7VT600-L Layout Continued :...



No matter how many times we stress to manufacturers concerning problematic areas with their motherboard designs, an installed video card in the AGP slot will repeatedly interfere with installing extra memory in the memory banks if the banks are placed too close to the AGP slot. Unfortunately this problem is present on the 7VT600-L motherboard. This design makes it very difficult to perform a memory upgrade which should be the easiest type of upgrade for any computer system. Instead, the user has to uninstall the video card, install the memory module, and then reinstall the video card. In addition, the memory banks on the 7VT600-L are located close to the processor socket towards the center of the motherboard which can easily block all three banks.



Between the motherboard's battery and the floppy connector, here we can find where the clear CMOS jumper would have been located. Instead, Gigabyte chose to supply the 7VT600-L with a BIOS timeout feature. For example, if you choose a setting within the BIOS with an incorrect value for a particular hardware component, the BIOS will determine an appropriate configuration within a twenty second period and then the system will boot correctly.



Moving down the right side of the motherboard, there is a FSB switch located beneath the AGP slot clip. When this switch is set to the off position, the 7VT600-L will automatically determine the default FSB of a 266MHz, 333MHz, or 400MHz DDR FSB processor. When this switch is set to the on position, the motherboard will default the FSB of any AMD processor to 200MHz DDR. Just below the FSB switch is the new VIA VT8237 southbridge, although the 7VT600-L does not take advantage of the SATA features that the VT8237 chip is capable of. To the immediate right of the southbridge resides the only additional 3-pin system fan header.



Near the bottom right hand corner of the motherboard, we come across a few more items. You can see that the white colored IDE connector is to the immediate right of the fifth PCI slot. If you happen to use a long PCI card in this slot, it will surely hamper the ability to remove or install an IDE cable. It will also be hard to reach the IDE cable to the top of a case since the IDE connector is located here at the bottom of the board. Under the right side of the green IDE slot we can find two yellow colored USB 2.0 headers to connect four additional USB ports. Just along the bottom edge of the 7VT600-L are the front panel connectors where you will connect the power switch, reset switch and LEDs to the appropriate color coded pins.

...: Gigabyte GA-7VT600-L Layout Continued :...



Moving along to the bottom left edge of the motherboard are more additional features. Beneath the left edge of the fifth PCI slot resides a single BIOS chip since the 7VT600-L does not support Gigabyte's DualBIOS feature. Directly under the BIOS chip lies a group of pins that resembles a USB header, but this connector will allow you to connect an optional modem card. The black group of pins beside the modem connector is what you will use to connect a cable for a Game/MIDI port. The iTE 8705 Super I/O chip sits to the immediate left of the fifth PCI slot. This chip controls the input and output of data communication of certain ports located on the 7VT600-L. Moving up the motherboard, to the left of the fourth PCI slot is where the Realtek 8101L network chip resides, and it can provide up to a 100 Mbps transfer rate. In case you are wondering, the version number can be located in this corner of the 7VT600-L motherboard. A closer look will reveal that this is the retail 1.0 version.



A few more items are located on the 7VT600-L as we make our way up the left side of the motherboard. Between the second and third PCI slots are two groups of pins for use with certain types of audio connections. The black group of pins allows surround sound capabilities and the red group of pins allows for an optional S/PDIF input and output Dolby Digital decoder. The small chip that is located beside the white colored aux_in connector is the Realtek ALC655 audio chip. As you might have guessed, this chip controls the 6-channel audio on our 7VT600-L. To the left of the green AGP slot is the black cd_in connector and another group of pins and jumpers for you to use audio controls in the front of your PC.



Right above the AGP slot on the 7VT600-L is the VIA KT600 northbridge chip. The chip is passively cooled with a gold colored aluminum heatsink with the Gigabyte company logo stamped on it. The heatsink is mounted to the northbridge with a plastic plug for each of the two motherboard holes that surrounds the KT600. It was rather easy to remove the plugs from the underside of the motherboard, but the thermal adhesive pad had a tight grip that prevented me from removing the heatsink without fear of damaging the capacitors surrounding the KT600 chip.



The 7VT600-L motherboard is equipped with a 2-phase power solution. You may be thinking that this is an inadequate attempt to feed all of the power that the motherboard needs, but I found no stability issues when benchmarking.



Our last stop with the design of the 7VT600-L motherboard is the I/O back panel. These are the ports that you will use to connect your external devices to the rear of the computer. The panel consists of two PS/2 ports for a keyboard and mouse, one parallel port, two serial ports, one

10/100 ethernet port, two USB 2.0 ports and three audio ports.

...: Gigabyte GA-7VT600-L System BIOS :...

Our motherboard was originally shipped with the initial F5 BIOS release for the 7VT600-L. However, the images shown here to describe the 7VT600-L motherboard's BIOS was successfully flashed to the latest F6 release using Gigabyte's software based @BIOS update method described in the user manual. This release was also used for all of our benchmarking and overclocking tests.



After pressing the delete key during POST, you will come to the main menu of the Award BIOS. If you start to configure your hardware now, you will quickly realize that the tweaking options located within these sub-menus are almost non-existent on the 7VT600-L.



However, if you press the Ctrl+F1 key combination when you are within the main menu of the Award BIOS, you can enable a couple of extra sub-menus as well as a plethora of tweaking options within each sub-menu. These are the hidden BIOS features and settings (which we talked about earlier) that are nowhere to be found in the user manual. I'm not sure why Gigabyte has decided to hide them, but the images below are taken with these hidden BIOS features and settings enabled.



The image above is the advanced chipset features sub-menu. You will not be able to access it without pressing the Ctrl+F1 key combination. As you can see, this is a critical section of the BIOS for tweaking numerous memory timings and for controlling AGP settings. The fast command setting can be set to either normal, fast or ultra, but selecting the ultra setting resulted in an unstable environment when running 3D applications with our hardware.

The next sub-menu is to disable or enable the integrated peripherals that are on the 7VT600-L motherboard. This section is self explanatory, but for an example, if you wish to use an Audigy 2 sound card, all you have to do is select the AC97 audio feature and set it to disabled. The next section in the BIOS controls the power management. These features are usually included in every motherboard's BIOS, so there is really nothing special here to report.



The PC health status sub-menu is where you can monitor voltages, temperatures and fan speeds within your system. For some unknown reason, the 7VT600-L is providing our 2500+ processor an unnecessary amount of extra voltage, if this reading is indeed correct. The processor's temperature is a bit higher than we are used to seeing while operating at a default clock speed. Hopefully this voltage problem can be fixed in a future BIOS update.



The next sub-menu is where you can change the frequency and voltages of certain components if you plan on overclocking. However, if you change the FSB frequency, you will inadvertently affect the PCI/AGP clocks. Not being able to lock the PCI/AGP clocks is the unfortunate limitation found on all VIA chipset motherboards and not just the Gigabyte 7VT600-L. The processor's FSB options are available up to 250MHz which is the equivalent of a 500MHz DDR FSB. By selecting the cpu overvoltage control, you can feed an extra 10% of voltage to the processor's default voltage. If you need more voltage for the video card or for the memory, an extra 0.3 volts are available for each of these components as well.

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