

**KS-TG919
VER: 2.0
Mainboard
User's Manual**

01



32 pin cache

Introduction



Overview

The KS-TG919 VER: 2.0 mainboard is a highly integrated, high-performance personal computer system board based on the Intel i486SX, i486DX, i486DX 2, or i486DX4 series CPU.

The mainboard four support power management modes:

Auto, APM, SMI, or DISABLE for Standard cu's. The mainboard provides a flexible and maximum power saving solution for green PC'S, and a "SWIFT-IDE" hard disk accelerator (Patent pending), and a state-of-the-art power management controller.

The mainboard features 8K bytes of cache built into the i486 CPU, as well as 64KB/128KB/256KB/512KKB/1MB of external cache memory. Cache increases system performance to significantly improve the speed of your programs.

The KS-TG919 VER: 2.0 mainboard is fully compatible with MS-DOS, OS/2, Xenix 386, Unix, MS Windows 3.0, Novell Ethernet, and thousands of applications available for IBM PC/XT/AT computers.

System Features

The advanced features of the KS-TG919 VER: 2.0 mainboard include:

- Advance state-of-the-art green PC power management control capability to reduce power consumption to less than 5 Watts when system is in SUSPEND state.
- 3 VL-Bus compliant with VESA 2.0 specifications
- Support of L1 CPU cache with WB or WT scheme for P24T, M6 or M7
- Support of L2 cache with WB or WT scheme in single or dual banks
- Support up to 64MB on board system memory
- Either 8 pin or 14 pin two kinds of clock chips for CPU and Chipset clock sources
- BIOS available from AWARD, AMI, Mt. BIOS or PHOENIX for true power saving capability

Hardware Configuration



This chapter explains how to configure the mainboard's hardware. Before you install the mainboard into the system chassis, you may find it convenient to first set the jumpers that configure the system's clock speed and cache size. Next, install the board's memory modules. After you have inserted the mainboard into the system chassis, attach system peripherals and control panel devices to the mainboard's connectors. Refer to this chapter whenever you upgrade or reconfigure your system.

Quick Reference Table

Jumper	Setting Description
JP~JP3, JP18, JP37~JP40	Cache Jumpers
JP4~JP8	CPU Voltage Selector
JP20, JP23, JP24, JP26, JP28~JP34, JP41, JP17, JP35, JP36, JP9, JP22, JP19	CPU Type Selector
JP44~JP46	CPU Clock Selector
J1	Keyboard Connector
J2	Power Supply Connector
RESET	Reset Switch Connector
TB-LED	Turbo LED Connector
TB-SW	Turbo Switch Connector
SPEAKER	Speaker Connector
KEYLOCK	Keylock & Power LED Connector

Jumpers, Connectors, and Cache Bank, Memory Locations

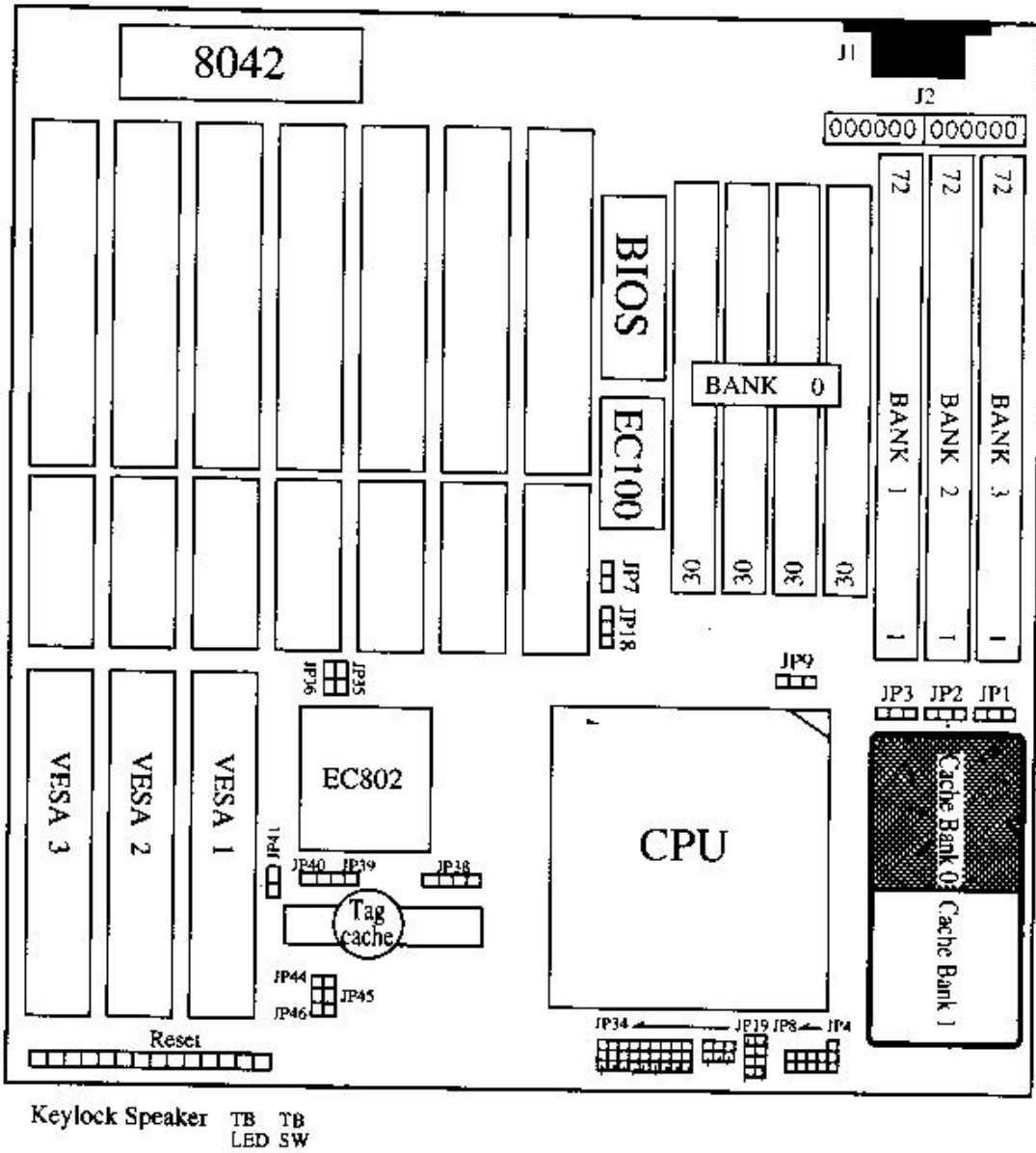


Figure 2-1. Jumpers, Connectors, and Cache Banks, Memory

Setting Jumpers

Your configure some hardware options on the mainboard by setting jumper switches. Jumper switches are rows of small pins on the mainboard that are set by using a jumper cap.

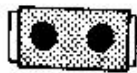
Set a jumper switch as follows:

- Close a jumper switch by inserting the plastic jumper cap over two pins of the jumper.
- Open a jumper switch by removing the jumper cap.

Note: When you open a jumper, attach the plastic jumper cap to one of the pins so you won't lose it.

Symbols:

For setting 2-pin jumpers, the following symbols are used:

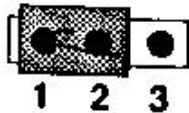


The jumper is Closed when the jumper cap is placed over the two pins of the jumper.

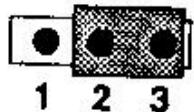


The jumper is Open when the jumper cap is removed from the jumper.

For setting three-pin jumpers, the symbols below are used:

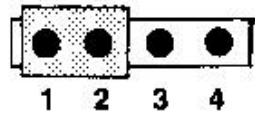


Pins 1 and 2 are Closed with a jumper cap.

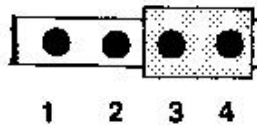


Pins 2 and 3 are Closed with a jumper cap.

For setting four pin jumpers, the following symbols are used



Pins 1 and 2 are Closed with a jumper cap.



Pins 3 and 4 are Closed with a jumper cap.

JP1~JP3, JP18, JP37~JP40: Cache Configuration

Select cache size by setting JP1~JP3, JP18, JP37~JP40 on the mainboard. These jumpers let the mainboard recognize a cache configuration of 64KB, 128KB, or 256KB, 512KB, 1MB. Refer to Figure 2-1 for the location of jumpers JP1~JP3, JP18, JP37~JP40.

The mainboard is available with 64KB, 128KB, or 256KB, 512KB, 1 MB cacche memory on-board. See Figure 2-1 for the locations of cache and tag memory. For cache data memary, the mainboard supports eight 8K×8-bit SRAM chips (64KB cache size), four 32K×8-bit SRAM chips (128KB cache size), or eight 32K×8-bit SRAM chips (256KB cache size), four 128K×8-bit SRAM chips (512KB cache size), or eight 128K×8-bit SRAM chips (1MB cache size). For tag cache memory, one 8K×8-bit chips or 32K×8-bit or 64K×8-bit chipw are required.

The table below describes cache size requirements and socket locations. See the following page for speed requirements.

Cache Size	Data SRAM Chip/Socket	Tag SRAM Chip/Socket
64K	8K×8/U1, U2, U3, U4, U5, U6, U7, U8	8K×8/U20
128K	32K×8/ U1, U2, U3, U4	8K×8/U20
256K	32K×8/U1, U2, U3, U4, U5, U6, U7, U8	32K×8/U20
512K	128K×8/ U1, U2, U3, U4	32K×8/U20
1M	128K×8/U1, U2, U3, U4, U5, U6, U7, U8	64K×8/U20

Setting the Cache Jumper

Set the cache jumper as in the table below.

CACHE	JP1	JP2	JP3	JP18	JP37	JP38	JP39	JP40
64K(8K×8)	1-2	OPEN	OPEN	1-2	OPEN	OPEN	OPEN	OPEN
128K(32K×8)	2-3	OPEN	OPEN	2-3	CLOSE	OPEN	OPEN	CLOSE
256K(32K×8)	1-2	OPEN	2-3	1-2	CLOSE	CLOSE	OPEN	CLOSE
256K(64K×8)	1-2	2-3	1-2	2-3	CLOSE	CLOSE	CLOSE	CLOSE
512K(64K×8)	1-2	2-3	2-3	2-3	CLOSE	CLOSE	CLOSE	CLOSE
1M(128K×8)	1-2	1-2	2-3	1-2	CLOSE	CLOSE	CLOSE	CLOSE

JP4~JP8: CPU Type Selector

VOLTAGE	JP4	JP5	JP6	JP7	JP8
5V	OPEN	CLOSE	CLOSE	CLOSE	CLOSE
4.1V	1-2	OPEN	OPEN	CLOSE	CLOSE
3.6V	2-3	OPEN	OPEN	CLOSE	CLOSE
3.45V	OPEN	OPEN	OPEN	CLOSE	CLOSE

**JP20, JP23, JP24, JP26, JP28~JP34, JP41, JP17, JP35,
JP36, JP9, JP22, JP19: CPU Type Selector**

You must set these jumpers as in the table below for the mainboard to recognize the type of CPU installed. Refer to Figure 2-1 for jumper locations.

CPU	JP20	JP23	JP24	JP26	JP28	JP29	JP30	JP31	JP32	JP33	JP34	JP41
INTEL DX2	1-2	OPEN	OPEN	2-3	OPEN	OPEN	1-2	1-2	2-3	OPEN	OPEN	OPEN
INTEL DX4	1-2	OPEN	OPEN	1-2	OPEN	OPEN	1-2	1-2	2-3	OPEN	OPEN	OPEN
P24D	1-2, 3-4	OPEN	OPEN	2-3	2-3	2-3	1-2	1-2	1-2	1-2	1-2	CLOSE
CYRIX	2-3	OPEN	OPEN	2-3	1-2	1-2	2-3	2-3	1-2	2-3	2-3	CLOSE
AMD	1-2	CLOSE	CLOSE	2-3	OPEN	OPEN	OPEN	OPEN	2-3	OPEN	OPEN	OPEN

	JP17	JP35	JP36
CYRIX DX/DX2	CLOSE	OPEN	CLOSE
P24D/P24D	CLOSE	OPEN	OPEN
CYRIX 486S/S2	OPEN	OPEN	CLOSE
486	OPEN	OPEN	OPEN

	JP9		JP22
OTHERS	1-2	OTHERS	OPEN
CYRIX CPU	2-3	AMD DX2-80	CLOSE

	JP19
DX CPU	1,2, 3-4
SX CPU	2-3

JP44~JP46: Cpu Clock Selector

The jumper is used to select two kinds of cpu clock speed on the main-board.

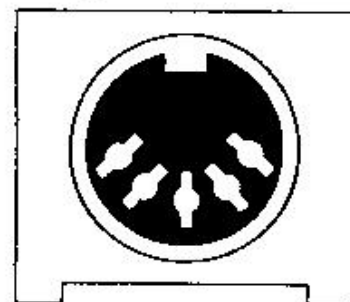
Cpu Clock (In Put)	JP44	JP45	JP46
33.33MHZ	CLOSE	CLOSE	CLOSE
80MHZ	CLOSE	OPEN	CLOSE
66.67MHZ	CLOSE	CLOSE	OPEN
50MHZ	CLOSE	OPEN	OPEN
40MHZ	OPEN	CLOSE	CLOSE
60MHZ	OPEN	OPEN	CLOSE
25MHZ	OPEN	CLOSE	OPEN
20MHZ	OPEN	OPEN	OPEN

J1-Keyboard Connector

The keyboard connector, J1, is standard five-pin female DIN connector.

Plug the keyboard cable into this connector.

Pin	Description
1	Keyboard Clock
2	Keyboard Data
3	Spare
4	Ground.
5	+5V DC

Keyboard Connector**3 5 2 4 1**

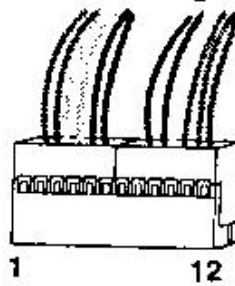
J2-Power Supply Connector

The power supply connector has two six-pin male header connectors. Plug the dual connectors from the power directly onto the board connector.

Pin	Description	Pin	Description
1	Power Good	7	Ground
2	+5V Dc	8	Ground
3	+12V DC	9	-5V DC
4	-12 DC	10	+5 DC
5	Ground	11	+5V DC
6	Ground	12	+5V DC

Power supply connector

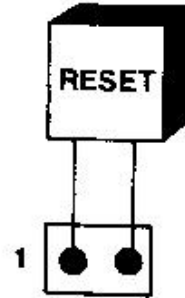
The black wires should be to the inside



Reset Switch Connector

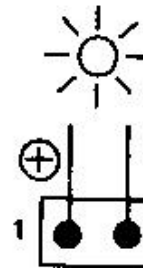
Attach the Reset switch to this connector. The Reset switch restarts the system.

Setting	Description
Short	Reset
Open	Not Reset

Reset Switch**Turbo LED Connector**

This connector attaches to a Turbo LED on the system case control panel. If the mainboard is in Turbo mode, the LED lights, in Normal mode the LED is off.

Pin	Description
1	+ Anode
2	- Cathode

TB-LED Connector

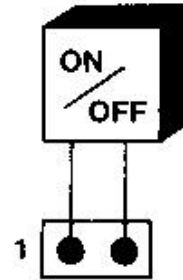
Note: The Turbo LED does not function well if Internal Cache or External Cache are disabled in the BIOS Setup program.

Turbo Switch Connector

This connector attaches to a Turbo switch on the front of the system case. The connector is open for turbo operation and shorted for normal operation.

Setting	Description
Off	Turbo
On	Normal

TB-SW Switch



Note: In Normal mode the i486 CPU's Internal Cache is disabled. This slows the performance of the i486 to emulate a slower CPU.

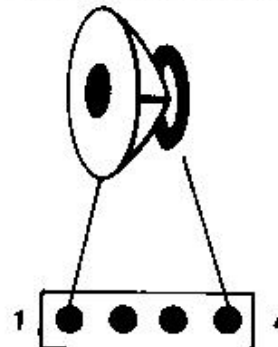
If switch opened the cpu speed is changed by software by keyboard using <CTRL>, <ALT> the <+> or <->.

Speaker Connector

Attach the system speaker to this connector.

Pin	Description
1	Data Out
2	Not Used
3	Ground
4	+5V

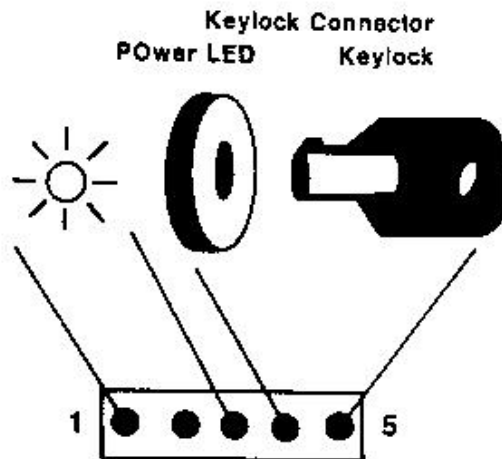
Speaker Connector



Keylock & Power LED Connector

The keylock connector enables and disables the keyboard and Power-LED on the case.

Pin	Description
1	LED power
2	Not Used
3	Ground
4	Keylock
5	Ground



Memory Configuration

Memory Bank Configuration (note: Double side is Bank 0, Bank 1 or Bank 2, Bank 3)

BANK 0	BANK 1	BANK 2	BANK 3	MEMORY
30PIN	72PIN	72PIN	72PIN	TOTAL SLZE
256Kx4				1M
				1M
256Kx4	1Mx 1-S			2M
	1Mx 1-S			2M
1Mx4				4M
	1Mx 1-S	1Mx 1-S	1Mx 1-S	4M
				4M
1Mx4	4Mx 1-S			8M
	4Mx 1-S			8M
4Mx4	4Mx 1-S			16M
1Mx4	4Mx 1-S	4Mx 1-S	4Mx 1-S	16M
		4Mx 1-S	4Mx 1-S	16M
	16Mx 1-S			16M
4Mx4	16Mx 1-S			32M
	16Mx 1-S			32M
4Mx4	16Mx 1-S	16Mx 1-S	16Mx 1-S	64M
	16Mx 1-S	16Mx 1-S	16Mx 1-S	64M