Motherboard Layout and Features

= mounting hole

CPU Installation

- Socket Key
- Pin 1
- CPU Key

Heatsink Installation

Press down and turn clockwise

Apply thermal grease

Front Control Panel

	1	2	
PWR Power Button	○	○	Ground
Reset Reset Button	○	○	Ground
3.3V	○	○	Power Fail LED
UID LED	○	○	OH/Fan Fail LED
3.3V Stby	○	○	NIC2 Active LED
3.3V Stby	○	○	NIC1 Active LED
UID SW	○	○	HDD LED
3.3V	○	○	PWR LED
X	○	○	X
NMI	○	○	Ground
	19	20	
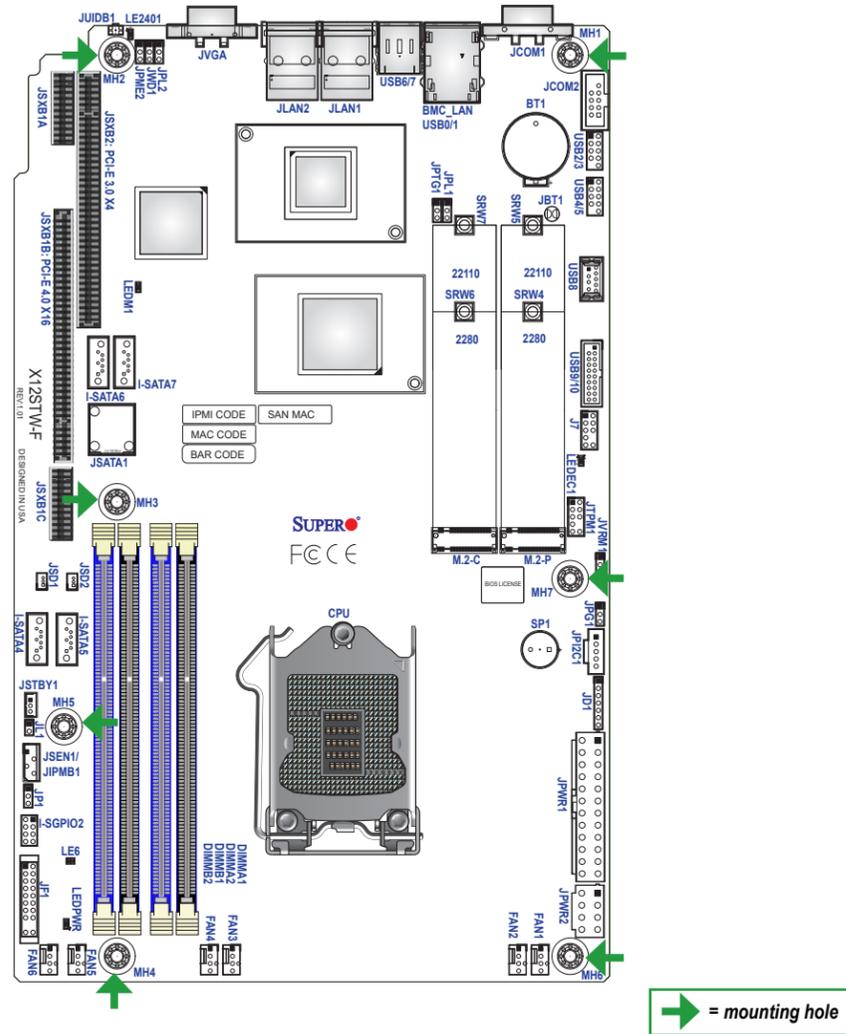
Jumpers and Connectors

Jumpers

Jumper	Description	Default
JBT1	CMOS Clear	Open (Normal)
JP1	JSEN1/JIPMB1 Select	Pins 1-2 (JSEN1)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPL1	LAN1 Enable/Disable (LAN I210)	Pins 1-2 (Enabled)
JPL2	LAN2 Enable/Disable (LAN I210)	Pins 1-2 (Enabled)
JPME2	Manufacturing Mode Select	Pins 1-2 (Normal)
JPTG1	LAN X550 Enable/Disable	Pins 1-2 (Enabled)
JWD1	Watch Dog Timer	Pins 1-2 (Reset)

Connectors

Connector	Description
BMC_LAN	Dedicated BMC LAN Port
BT1	Onboard Battery
FAN1 - FAN6	CPU/System Fan Headers
I-SATA4 - I-SATA7	Intel® PCH SATA 3.0 Ports
I-SGPIO2	Serial General Purpose I/O Header
JCOM1, JCOM2	COM Port, COM Header
JD1	Speaker/Power LED Header (Pins 1-2: Power LED, Pins 4-7: Speaker)
JF1	Front Control Panel Header
JL1	Chassis Intrusion Header
JLAN1, JLAN2	1G (-F), 10G (-TF) LAN Ports
JPI²C1	Power System Management Bus (SMB) I²C Header
JPWR1	24-pin ATX Power Connector
JPWR2	8-pin Power Connector
JSATA1	Intel PCH SATA 3.0 Port (I-SATA0-3)
JSD1, JSD2	SATA DOM Power Connectors
JSEN1/JIPMB1	System Front Inlet Temperature Sensor/BMC External I2C Header (for an IPMI card) (Selected by JP1)
JSTBY1	Standby Power Header
JSXB1A, JSXB1B, JSXB1C	SMC-Proprietary WIO_L (Left) PCIe 4.0 x16 Add-On Card Slots (WIO-L will run at PCIe 3.0 x16 when a Pentium processor is installed)
JSXB2	SMC-Proprietary WIO_R (Right) PCIe 3.0 x4 Add-On Card Slot
JTPM1	Trusted Platform Module (TPM) Header
JUIDB1	Unit Identifier (UID) Button
JVGA	VGA Connector
M.2-C	M.2 PCIe 4.0 x4 Slot (2280/22110) (M.2-C is not supported when a Pentium processor is installed)
M.2-P	M.2 PCIe 3.0 x4 Slot (2280/22110)
SP1	Internal Buzzer/Speaker
SRW4 - SRW7	M.2 Holding Screws
USB0/1	Back Panel USB 2.0 Ports
USB2/3, USB4/5	Front Accessible USB 2.0 Headers
USB6/7	Back Panel USB 3.2 Gen 1 Ports
USB8	USB 3.2 Gen 2 Type-A Header
USB9/10	Front Accessible USB 3.2 Gen 1 Header

LED Indicators

LED Indicators

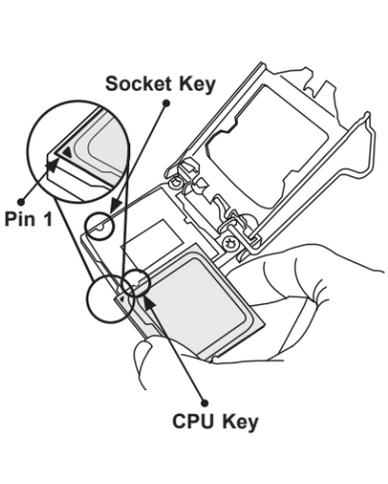| LED	Description	Status
LE6	Power Ready LED	Solid Amber: Standby Solid Red: Power Failed Solid Green: Power On
LE2401	Unit Identifier (UID) LED	Solid Blue: Unit Identified
LEDEC1	Embedded Controller (EC) Heartbeat LED	Blinking Green: EC Normal
LEDM1	BMC Heartbeat LED	Blinking Green: BMC Normal
LEDPWR	Onboard Power LED	Solid Green: Power On

CPU Support

The X12STW-F/TF Supports an Intel Xeon E-2300 and 10th Generation Pentium (Socket H5 - LGA 1200) series processor with a thermal design power (TDP) of up to 95W and eight cores.
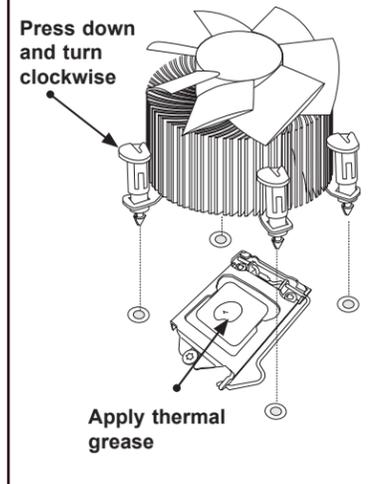
Memory Support

The X12STW-F/TF supports up to 128GB of DDR4 ECC UDIMM memory with speeds of up to 3200MHz in four memory slots. Speed support is up to 2666MHz when a Pentium processor is installed. Speed support is up to 2933 MHz for 2R2R configurations.

Insert the desired number of DIMMs into the memory slots, starting with DIMMB2, DIMMA2, then DIMMB1, DIMMA1. Populating these DIMM slots with a pair of memory modules of the same type and size will result in interleaved memory, which will improve memory performance.

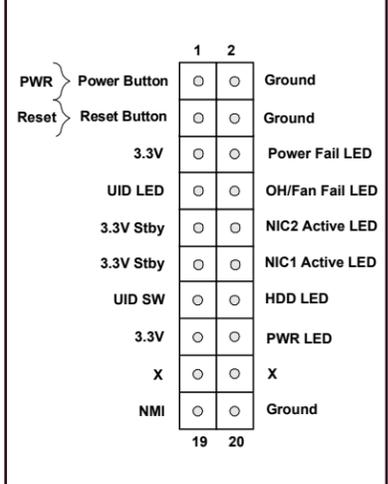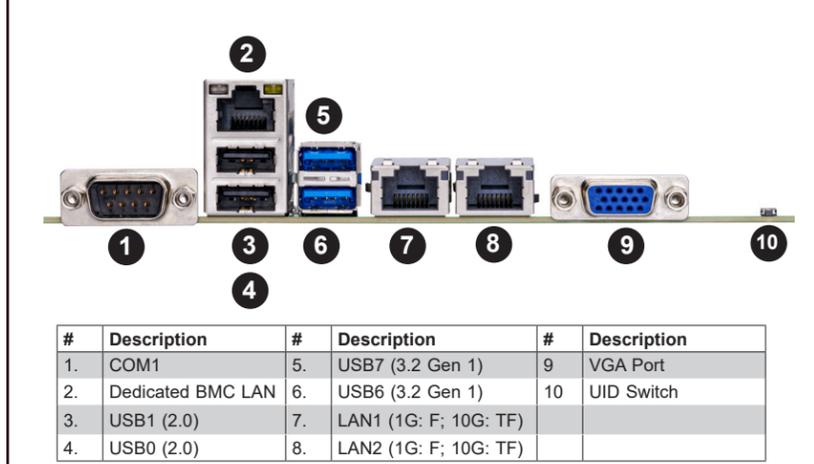| Max	4 Gb DRAM Technology	8 Gb DRAM Technology	16 Gb DRAM Technology
Single Rank UDIMM	16 GB (4 x 4 GB DIMMs)	32 GB (4 x 8 GB DIMMs)	64 GB (4 x 16 GB DIMMs)
Dual Rank UDIMMs	32 GB (4 x 8 GB DIMMs)	64 GB (4 x 16 GB DIMMs)	128 GB (4 x 32 GB DIMMs)

Back Panel I/O Connectors

#	Description	#	Description	#	Description
1.	COM1	5.	USB7 (3.2 Gen 1)	9	VGA Port
2.	Dedicated BMC LAN	6.	USB6 (3.2 Gen 1)	10	UID Switch
3.	USB1 (2.0)	7.	LAN1 (1G: F; 10G: TF)		
4.	USB0 (2.0)	8.	LAN2 (1G: F; 10G: TF)		

Note: Graphics shown in this quick reference guide are for illustration only. Your components may or may not look exactly the same as drawings shown in this guide.

Note: Refer to Chapter 2 of the User Manual for detailed information on jumpers, connectors, and LED indicators.

Note: Refer to Chapter 2 of the User Manual for detailed information on memory support and CPU/motherboard installation instructions.