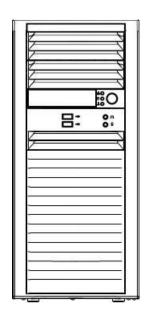
NEC SX-Aurora TSUBASA A100-1 series



USER'S GUIDE

Revision 2.0

The information in this User's Guide has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the information in this Guide, or to notify any person or organization of the updates.

Please Note: For the most up-to-date version of this Guide, please see our website at http://www.nec.com/en/global/prod/hpc/aurora/document/.

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Guide Revision 2.0

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Preface

About this guide

This Guide is written for professional system integrators and PC technicians. It provides information for the installation and use of the SX-Aurora TSUBASA A100-1 series. Installation and maintenance should be performed by experienced technicians only.

Please refer to the A100-1 series server specifications page on our website for updates on supported memory, processors and operating systems (http://www.nec.com/en/global/prod/hpc/aurora/document/).

Notes

For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's Guide for your server.

- NEC product manuals: http://www.nec.com/en/global/prod/hpc/aurora/document/
- Product safety info: http://www.nec.com/en/global/prod/hpc/aurora/document/safety_information.pdf

This Guide may be periodically updated without notice. Please check the NEC website for possible updates to the manual revision level.

Warnings

Special attention should be given to the following symbols used in this guide.



Warning! Indicates important information given to prevent equipment/property damage or personal injury.



Warning! Indicates high voltage may be encountered when performing a procedure.

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of SX-Aurora TSUBASA A100-1 Series.

1.2 Unpacking the System

Inspect the box the SX-Aurora TSUBASA A100-1 Series was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby. Be sure to read the precautions and considerations noted in Appendix B.

1.3 System Features

The following table provides you with an overview of the main features of the A100-1 Series.

System Features
Motherboard
Supermirco X11DAi-N
Chassis
Supermicro SC732D3-1200B
CPU
Supports single Intel Xeon 6126/4108 [A100-1,A101-1 model] / 4208 [A111-1 model] processors
Socket Type
Socket P0-LGA3647
Memory
96GB
Chipset
PCH C621
PCIe Card
Single Vector Engine 1.0 [A100-1,A101-1 model] / 1.0E [A111-1 model] card
Hard Drives
One 3.5" hard drive
Power
Single 1200W power supply
Form Factor
Mid-tower
Dimensions
(WxHxD) 7.6 x 16.7 x 20.68 in. (193 x 424 x 525.3 mm)
Host Server
A100-1-VH [A100-1 model] / A101-1-VH [A101-1 model] / A111-1-VH [A111-1 model]

1.4 Server Chassis Features

> Control Panel

The switches and LEDs located on the control panel are described below. See Chapter 4 for more details on the control panel.

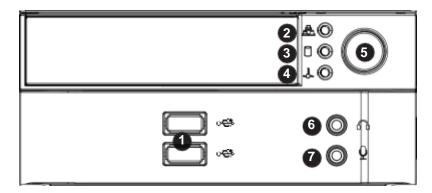


Figure 1-1. Control Panel View

Control Panel Features		
Item	Feature	Description
1	USB 3.0 Ports	Front access USB 3.0 ports (2x)
2	NIC LED	Indicates network activity on the LAN port when flashing.
3	HDD LED	Indicates activity on the hard drive when flashing.
4	Information LED	See table below
5	Power Button	The main power button is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform many maintenance tasks, you must also unplug system before servicing
6	Line Out	Line out jack
7	Mic	Microphone jack

Information LED		
Status Description		
Continuously on and red	An overheat condition has occured. (This may be caused by cable congestion.)	
Blinking red (1Hz)	Fan failure, check for an inoperative fan.	
Solid blue	Local UID has been activated. Use this function to locate the server in a rackmount environment.	
Blinking blue	Remote UID is on. Use this function to identify the server from a remote location.	

> Front Features

A100-1 series mid-tower chassis is a Supermicro SC732D3-1200B chassis. See the illustration below for the features included on the front of the chassis.

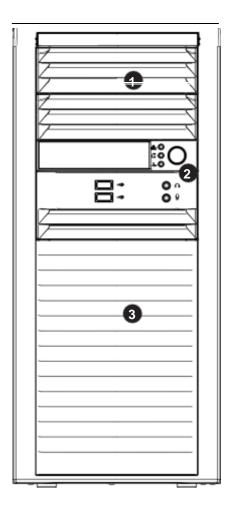


Figure 1-2. Chassis Front View

	Front Chassis Features		
Item	Feature	Description	
1	Fixed Drive Area	Supports two fixed 5.25" drives (such as a DVD-ROM)	
2	Control Panel	Front control panel (see preceding page)	
3	Internal HDD Cage (behind bezel)	Supports four 3.5" hard drives in a rotatable cage	

> Rear Features

The illustration below shows the features included on the rear of the chassis.

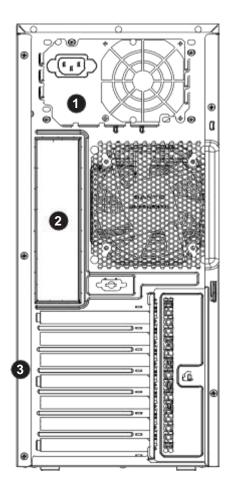


Figure 1-3. Chassis Rear View

Rear Chassis Features				
Item	tem Feature Description			
1	Power Supply	1200W power supply		
2	I/O Backpanel	Rear I/O ports (see Section 1.6)		
3	PCI Slots	Supports seven full-height, full-length PCI expansion cards		

1.5 System Block Diagram

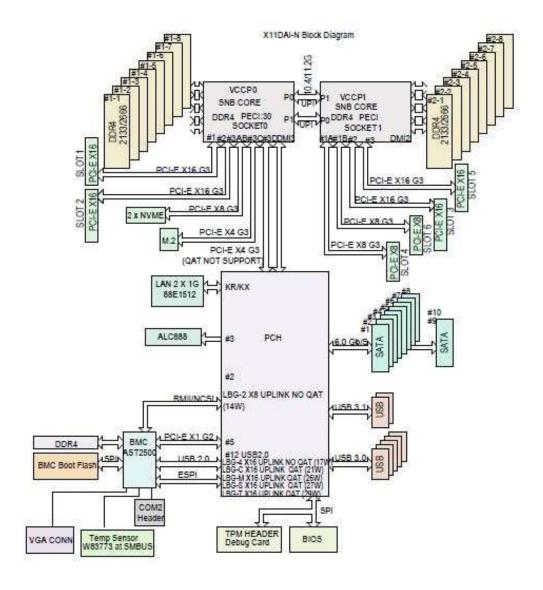


Figure 1-4. C621 Chipset: System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the Section 1.3 System Features for the actual specifications of your motherboard.

1.6 Ports

Rear I/O Ports

See the figure below for the locations and descriptions of the various I/O ports on the rear of the motherboard.

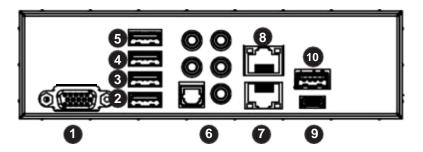


Figure 1-5. Rear I/O Ports

Rear I/O Ports			
# Description # Description			Description
1.	VGA	6.	7.1 HD Audio
2.	USB 1 (USB 3.0)	7.	LAN1
3.	USB 2 (USB 3.0)	8.	LAN2
4.	USB 3 (USB 3.0)	9.	USB 8 (USB 3.1) type C
5.	USB 4 (USB 3.0)	10.	USB 9 (USB 3.1) type A

Ethernet Ports

Two Ethernet ports (LAN1, LAN2) are located on the I/O backplane. These Ethernet ports support 1 GbE LAN connections on the X11DAi-N. These Ethernet ports accept RJ45 type cables. Please refer to the LED Indicator section for LAN LED information.

Notes:

- LAN interface link speed supports only 1Gb/s.
 Please connect the LAN interface to 1Gb/s supported Ethernet switch.
- In case link-up fails, please turn off auto-negotiation mode and fix the link-speed to 1Gb/s on Ethernet switch.

VGA Port

The onboard VGA port is located next to USB 3.0 ports on the I/O back panel. Use this connection for VGA display.

> 7.1 HD (High-Definition) Audio

This motherboard features a 7.1 Channel High-Definition Audio (HDA) codec that provides 8 DAC channels. The HD audio supports multiple-streaming 7.1 sound playback through the front_panel stereo output via the subwoofer speakers. Download the appropriate software from our website to enable this function.

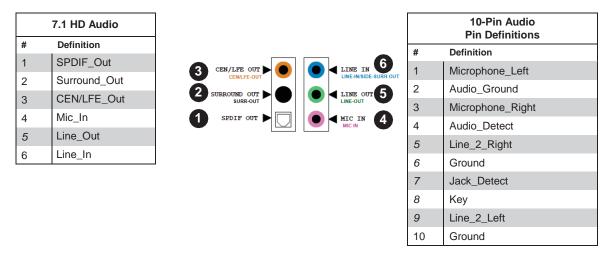


Figure 1-6. Audio Pin

Universal Serial Bus (USB) Ports

There are four USB 3.0 ports (USB 1-4) and two USB 3.1 ports (USB 8/9) on the I/O back panel. Another USB 3.0 header, located next to the TPM/Port 80 header, also provides two USB 3.0 connections (USB 5/6) for front access. In addition, a Type A USB connector (USB 7) can be used for front side USB 3.0 access with a cable (not included).

	Back Panel USB 1-4 (3.0) Pin Definitions			
Pin#	Definition	Pin#	Definition	
A1	VBUS	B1	Power	
A2	D-	B2	USB_N	
А3	D+	В3	USB_P	
A4	GND	B4	GND	
A5	Stda_SSRX-	B5	USB3_RN	
A6	Stda_SSRX+	B6	USB3_RP	
A7	GND	B7	GND	
A8	Stda_SSTX-	B8	USB3_TN	
A9	Stda_SSTX+	В9	USB3_TP	

Pin#	Definition	Pin#	Definition
1	VBUS	19	Power
2	Stda_SSRX-	18	USB3_RN
3	Stda_SSRX+	17	USB3_RP
4	GND	16	GND
5	Stda_SSTX-	15	USB3_TN
6	Stda_SSTX+	14	USB3_TP
7	GND	13	GND
8	D-	12	USB_N
9	D+	11	USB_P
10		х	

Front Panel USB 5/6 (3.0) Pin Definitions

Type A USB 7 (3.0) Pin Definitions						
Pin#	Pin# Definition Pin# Definition					
1	VBUS	5	SSRX-			
2	USB_N	6	SSRX+			
3	USB_P	7	GND			
4	Ground	8	SSTX-			
		9	SSTX+			

1.7 LED Indicators

> LAN LEDs

The LAN ports are located on the I/O Backplane on the motherboard. Each Ethernet LAN port has two LEDs. The yellow LED on the right side of the LAN port indicates activity. The Link LED located on the left may be green, amber or off to indicate the speed of the connection. See the table at right for more information.

LAN1/2 LED (Connection Speed Indicator)		
LED Color	Definition	
Off	No Connection, 100 Mb/s or 10 Mb/s	
Amber	1 Gb/s	

Notes:

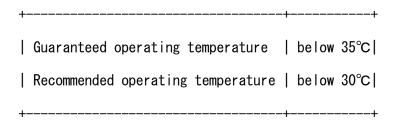
- LAN interface link speed supports only 1Gb/s.
 Please connect the LAN interface to 1Gb/s supported Ethernet switch.
- In case link-up fails, please turn off auto-negotiation mode and fix the link-speed to 1Gb/s on Ethernet switch.

1.8 Environmental specifications

> Environment temperature

Please keep environment temperature at 30°C or lower to avoid throttling and performance degradation when SX-Aurora TSUBASA server is operating.

SX-Aurora TSUBASA server has thermal throttling function to protect the LSI mounted on Vector Engine card (VE card) from heat damage and to keep working. If VE LSI temperature exceeds a certain temperature, the VE reduces instruction execution rate in order to suppress heat production.



How to confirm the throttling occurrence history

SX-Aurora TSUBASA server records throttling history. By checking VE card log, it can be confirmed if throttling happened or not. The steps are described as bellow;

If throttling occurs, please keep enough intake/exhaust space around the server to provide enough airflow and keep the room temperature at 30°C or lower.

☐ For users and programmers (without root privileges)

- Set a value "DETAIL" to the environment variable "VE_PROGINF" when you run a program.
- It doesn't affect program performance at all.

If throttling occurs, Power Throttling (sec) and Thermal Throttling (sec) show values more than 0.000000. (Please check the lines marked with the token "*".)

Ev) book			
Ex) bash			
\$ export VE_PROGINF=DET/			
\$ /opt/nec/ve/bin/ve_exec ./a.	out		
(standard output)			
******* Program Information	******		
Real Time (sec)	:	192.360841	
User Time (sec)	:	1534.571764	
(skip)			
Power Throttling (sec)	:	0.000000	*
Thermal Throttling (sec)	:	0.000000	*
Max Active Threads	:	8	
Available CPU Cores	:	8	
Please access to "PROGINF/	FTRACE	User's Guide" o	on Aurora Forum web site, and you can
find details about PROGINF.			
☐ For system administrators (with root	privileges)	
1. Login to the Vector Host			
2. Execute the following con	nmands		
\$ su			《change to super user》
Input the password of root			
# grep 'Environmental Warnin	g detectir	ng' /var/log/mes	sages*
(If throttling occurs, messages			
			er ve_monitor: VE_MMM4033007: VE0
Environmental Warning detec		_	_

Chapter 2

Workstation Setup

2.1 Overview

This chapter provides advice setting up your system.

2.2 Preparing for Setup

Please read this section in its entirety before you begin the installation.

Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas
 where heat, electrical noise and electromagnetic fields are generated.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).

General Precautions

- Review the electrical and general safety precautions in Appendix B.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges and voltage spikes and to keep your system operating in case of a power failure.
- Allow any drives and power supply modules to cool before touching them.

Chapter 3

Maintenance and BIOS Setting

3.1 OverView

About maintenance and BIOS setting, only trained and qualified personnel of NEC system should be allowed to install, replace, or service this equipment.

Appendix A

BIOS Codes

A.1 BIOS Error POST (Beep) Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list (on the following page) correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

BIOS Beep (POST) Codes				
Beep Code	Error Message	Description		
1 beep	Refresh	Circuits have been reset (Ready to power up)		
5 short, 1 long	Memory error	No memory detected in system		
5 long, 2 short Display memory read/write error		Video adapter missing or with faulty memory		
1 long continuous System OH		System overheat condition		

Appendix B

Standardized Warning Statements for AC Systems

B.1 About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact NEC's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the NEC chassis.

These warnings may also be found on our website at http://www.nec.com/en/global/prod/hpc/aurora/document/safety_information.pdf

Warning Definition



Warning! This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、電気 回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

Circuit Breaker



Warning! This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。 保護装置の定格が250 V、20 Aを超えないことを確認下さい。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

> Equipment Installation



Warning! Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

Restricted Area



Warning! This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

Comply with Local and National Electrical Codes



Warning! Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

Product Disposal



Warning! Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

Power Cable and AC Adapter



Warning! When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by NEC only.

電源コードとACアダプター

製品を設置する場合、提供または指定および購入された接続ケーブル、電源コードとACアダプターを該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。

電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSAマークがコードに表記)を NEC が指定する製品以外に使用することを禁止しています。

Warnung

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adapater, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adapter können Fehlfunktionen oder Feuer verursachen. Die Richtlinien untersagen das Nutzen von UL oder CAS zertifizierten Kabeln (mit UL/CSA gekennzeichnet), an Geräten oder Produkten die nicht mit NEC gekennzeichnet sind.

Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de securite y compris les tailles de cables et les prises electriques appropries. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifies- UL ou CSA (qui ont UL ou CSA indiqué sur le code) pour tous les autres appareils électriques sauf les produits désignés par NEC seulement.