

Quick Installation Guide

Version 1.0

EmCORE-n511

3.5" NS Geode GX1 300MHz Single Board
Computer with 64 MB SDRAM, CRT
SVGA, single Realtek 8139C Fast Ether-
net, AC97 3D Audio, PC/104 and DiskOn-
Chip / Compact Flash Socket

Part Number: 4041051100100

Copyright® 2003

All Rights Reserved.

The information in this document is subject to change without prior notice in order to improve the reliability, design and function. It does not represent a commitment on the part of the manufacturer.

Under no circumstances will the manufacturer be liable for any direct, indirect, special, incidental, or consequential damages arising from the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside
2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry
3. Use a grounded wrist strap when handling computer components.
4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the system

Replacing the lithium battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (BR2335).

Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please consult the user's manual first at:

<ftp://ftp.arbor.com.tw/pub/manual>

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

<http://www.arbor.com.tw>

E-mail: info@arbor.com.tw

Specifications

General Specifications

- **CPU** : NS Geode GX1 300MHz MHz with FSB 33MHz.
- **Chipset** : NS CS5530A.
- **BIOS** : AWARD® Flash BIOS
- **Green Function** : power saving supported in BIOS. DOZE / STANDBY APM
- **L1 Cache** : Integrated on CPU
- **L2 Cache** : Integrated on CPU
- **DRAM Memory** : Onboard 64MB SDRAM, and up to 256MB of SDRAM on SODIMM (144-pin), Total of 320MB Memory
- **Enhanced IDE with UltraDMA** : supports 2 port and up to 4 ATAPI devices, Ultra DMA transfer 33 MB/sec. Two 44-pin (2.0 pitch) box header.
- **Watchdog Timer** : 1~256 Sec generates RESET when your application loses control over the system.
- **Real-time Clock** : built-in chipset with lithium battery backup. CMOS data backup of BIOS setup and BIOS default.

High Speed Multi I/O

- **Chipset** : Winbond 83977F
- **Serial Ports** : Two high speed RS-232C ports (COM1). One high speed RS-232C/422/485 port COM2 (jumper selectable). Both with 16C550 compatible UART.
- **USB** : 2 onboard USB ports Ver 1.1.
- **SIR Interface** : onboard IrDA TX/RX port
- **Floppy Disk Drive Interface** : 2 floppy disk drives, 3½" (720 KB, 1.44 MB or 2.88 MB).
- **Bi-directional Parallel Port** : SPP, EPP and ECP mode.
- **Keyboard and Mouse Connectors** : external PS/2 KB/Mouse port (2-in-1 mini DIN) and onboard AT Keyboard port (6-pin box header)
- **Audio Chipset**: NS CS5530A, AC97 2.0 compliant, Multistream Direct Sound and Direct Sound 3D acceleration. (Line-in, CD Audio in, MIC in, Speaker out)

Network Interface Controller

- **Chipset** : Single Realtek 8139C, 10/100 Mbps
- **Connector** : external RJ-45 with LEDs on connector

Display Controller

- **Chipset** : C&T69000(EmCORE-n511/VLC), CS5530A(EmCORE-n511/VL)
- **Display Type** : CRT (VGA, SVGA, XGA, SXGA) and 36-bit TFT LCD TV-Out (EmCORE-n511VL including)
- **Connectors** : external DB15 for CRT on-board
- **Resolution**: >EmCORE-n511/VLC CRT resolutions up to 1280x1024 @ 256 colors or 1204x768 @ 16bit or 800x600 @ 24bit . Panel resolutions up to 1280x1024 @ 8bpp or 1024x768 @ 16bpp or 800x600 @ 24bpp.
>EmCORE-n511/VL CRT resolutions up to 1280x1024 @ 256 colors or 1024x768 @ 16bit . Panel resolutions up to 1280x1024 @ 8bpp or 1024x768 @ 16bpp .

SSD Interfaces

- **DiskOnChip (DOC)**
 - **Package** : Single Chip Flash Disk in 32-pin DIP JEDEC
 - **Capacity** : Up to 288 MByte
 - **Data Reliability** : ECC/EDC error correction
 - **Memory Window** : 8 KByte
- **Compact Flash Card (CFC)**
 - **Compact Flash Socket** : supports Type I/II CFC
 - **Capacity** : up to 512MB CFC

Environmental and Power

- **Power Requirements** : +5 V @ 1.7 A (typical);(Low Power Embedded NS Geode GX1 300MHz and 256MB SDRAM)
- **Board Dimensions** : 145mm x 102mm
- **Board Weight** : 0.176kg
- **Operating Temperature** : 0 to 60°C (32 to 140°F)
- **Operating Humidity** : 0%~90%

Packing list

Before you begin installing your single board computer, please make sure that the following materials have been shipped:

- > 1 x EmCORE-n511 3.5" Embedded NS Geode GX1 300MHz SBC
- > 1 x Quick Installation Guide 4041051100100
- > 1 x CD-ROM (for driver used) 4311013300180

Optional

> 1 x Cable Kits contains the followings:

Content	Part No.
. 1 x Parallele Port Cable	3432091000000
. 2 x UltraDMA 33 IDE Flat Cable	3432061000010
. 1 x Serial Port Cable	3432021000010
. 1 x Audio Cable	3431011000000
. 1 x FDD Cable	3432031000010

Ordering Codes

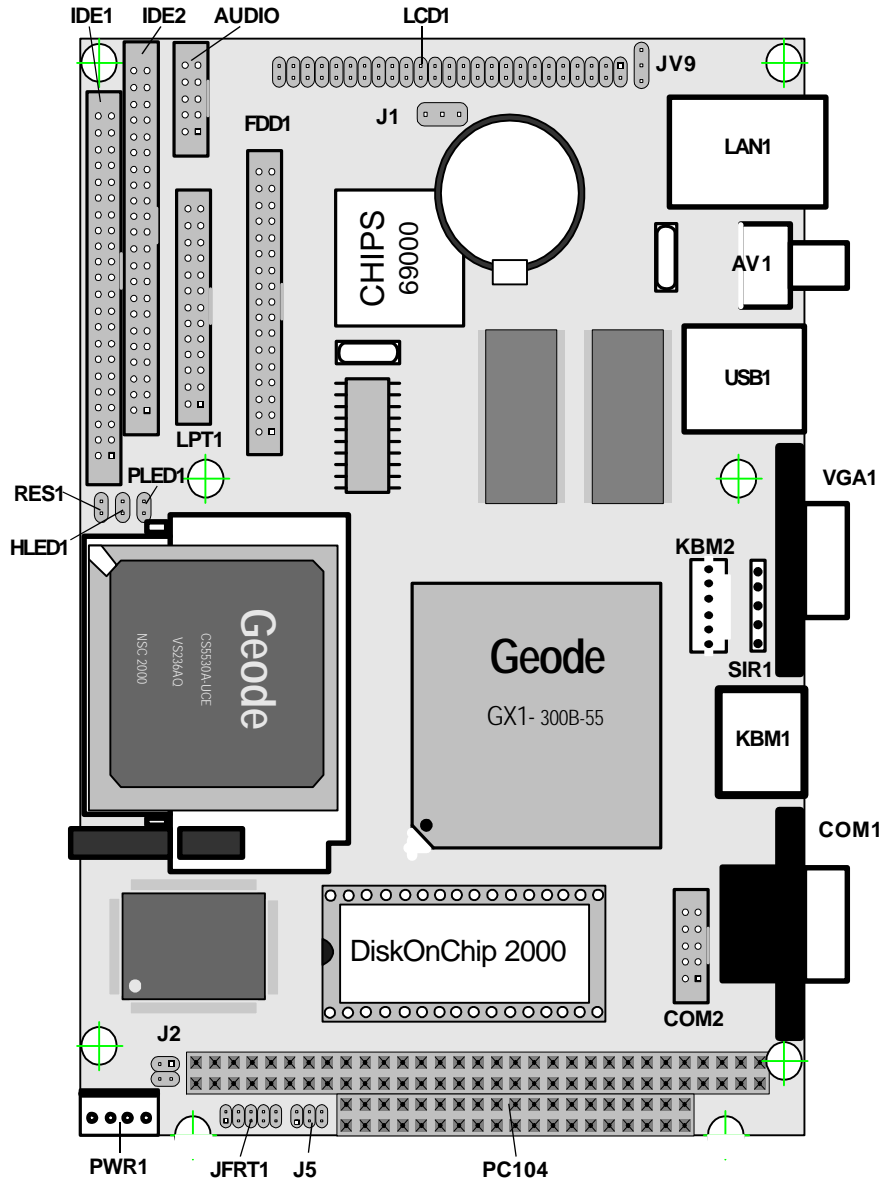
EmCORE-n511/VLC

3.5" NS GX1 Module with 64MB on-board and one SODIMM up to 320 MB SDRAM , C&T 69000 Flat Panel / CRT SVGA , Fast Ethernet , Audio

EmCORE-n511/VL

3.5" NS GX1 Module with 64MB on-board and one SODIMM up to 320 MB SDRAM , Flat Panel / CRT SVGA , TV-out, Fast Ethernet , Audio

Board Layout



Jumper/Connector Quick Reference

Jumpers	
Label	Function
J1	Clear CMOS
J2	DOC Address Select
J5	COM2 RS-232C / 422 / 485 Selection
JV9	LCD Voltage Select

Jumper/Connector Quick Reference

Connectors

Lable	Function
VGA1	VGA Display Connector
LCD1	LCD Connector
IDE1	Primary IDE Connector
IDE2	Secondary IDE Connector
CFD1	Compact Flash Connector
USB1	USB Port 0,1
AUDIO	Audio Interface Port
SIR1	Infrared (IR) Connector
KBM1	Keyboard and PS/2 Mouse (Mini Din)
KBM2	Keyboard and PS/2 Mouse
FDD1	Floppy Drive Connector
LAN1	10/100M LAN1 Connector
LPT1	Parallel Port
COM1	RS-232C Serial Port (DSub-9)
COM2	RS-232C/422/485 Serial Port
PWR1	Small 4P Power Connector
DOC 2000	Disk On Chip 2000
RES1	Reset Switch
PC104	ISA PC-104 Interface
PLED1	Power LED
HLED1	HDD LED
JFRT1	Front Panel Connector
AV1	Vedio Out
SODIM1	SODIMM Socket

Serial Port Selection (RS232C/422/485)

RS-232C/422/485 Mode select (J5)

Type : J5: onboard 6-pin(2*3) header



RS-422/485 Mode on COM2

The onboard COM2 port can be configured to operate in RS-422 or RS-485 modes. RS-422 modes differ in the way RX/TX is being handled. Jumper J5 switches between RS-232C or RS-422/485 mode. All of the RS-232C/422/485 modes are available on COM2.

COM2

Pin Defined:	RS-232C	RS-422	RS-485
Pin1 :	DCD	Tx+	RTx+
Pin2 :	RXD	Tx-	RTx-
Pin8 :	CTS	Rx+	x
Pin9 :	RI	Rx-	x

J5 Selection	1-2	3-4	5-6
RS-232C	ON	OFF	OFF
RS-422	OFF	ON	OFF
RS-485	OFF	OFF	ON

default setting RS-232C

LCD Voltage Select

LCD Voltage Select : JV9

Type : JV9: onboard 3-pin header



The voltage of LCD panel could be selected by JV9 in 5V or 3.3V .

Mode	JV9
5V	1-2
3.3V	2-3
default setting	3.3V

Flat Panel VGA

Flat Panel VGA (LCD) : LCD1

Connector : **LCD1**

Type : Onboard 50-pin box header (25*2 connector 2.0mm)



C&T69000 36-bit

Pin	Description	Pin	Description
1	+12V	2	+12V
3	GND	4	GND
5	VCC_LCD	6	ENAVDD
7	ENAVEE	8	GND
9	FB0	10	FB1
11	FB2	12	FB3
13	FB4	14	FB5
15	SB0	16	SB1
17	SB2	18	SB3
19	SB4	20	SB5
21	FG0	22	FG1
23	FG2	24	FG3
25	FG4	26	FG5
27	SG0	28	SG1
29	SG2	30	SG3
31	SG4	32	SG5
33	FR0	34	FR1
35	SHFCLK	36	FLM
37	M	38	LP
39	GND	40	ENABKL
41	FR2	42	FR3
43	FR4	44	FR5
45	SR0	46	SR1
47	SR2	48	SR3
49	SR4	50	SR5

Flat Panel VGA

Flat Panel VGA (LCD) : LCD1

C&T69000 18/24-bit

Pin	Description	Pin	Description
1	+12V	2	+12V
3	GND	4	GND
5	VCC_LCD	6	ENAVDD
7	ENAVEE	8	GND
9	B0	10	B1
11	B2	12	B3
13	B4	14	B5
15	B6	16	B7
17	G0	18	G1
19	G2	20	G3
21	G4	22	G5
23	G6	24	G7
25	R0	26	R1
27	R2	28	R3
29	R4	30	R5
31	R6	32	R7
33	NC	34	NC
35	SHFCLK	36	FLM
37	M	38	LP
39	GND	40	ENABKL
41	NC	42	NC
43	NC	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	NC

Flat Panel VGA

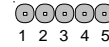
Flat Panel VGA (LCD) : LCD1

CS5530A 18-bit

Pin	Description	Pin	Description
1	+12V	2	+12V
3	GND	4	GND
5	VCC_LCD	6	ENAVDD
7	ENAVEE	8	GND
9	B0	10	B1
11	B2	12	B3
13	B4	14	B5
15	G0	16	G1
17	G2	18	G3
19	G4	20	G5
21	R0	22	R1
23	R2	24	R3
25	R4	26	R5
27	NC	28	NC
29	NC	30	NC
31	NC	32	NC
33	NC	34	NC
35	SHFCLK	36	FLM
37	M	38	LP
39	GND	40	ENABKL
41	NC	42	NC
43	NC	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	NC

Infrated (IR)

Infrated(IR) : SIR1



Connector : **SIR1**

Type : SIR1: onboard 5-pin header

Pin	Description	Pin	Description
1	Vcc	2	NC
3	IRRX	5	GND
5	IRTX		

Power Connector

Power Connector : PWR1



Connector : **PWR1**

Type : PWR1: onboard small 4P connector

Pin	Description	Pin	Description
1	+5V	2	GND
3	GND	4	+12V

Keyboard & PS/2 Mouse

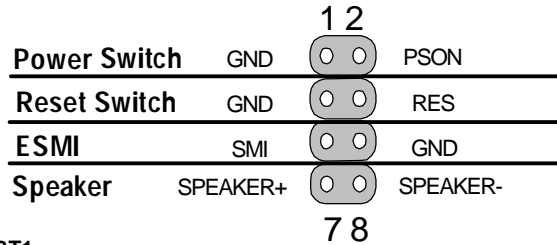
Power Connector : KBM2

Connector : **KBM2**

Type : KBM2: onboard waver 6-pin

Pin	Description	Pin	Description
1	KB_DATA	2	GND
3	MS_DATA	4	KB_CLK
5	+5V	6	MS_CLK

Switches and Indicators



Connector : **JFRT1**
 Type : onboard 8-pin(2*4) header

Pin	Jumper	Description
1-2	PSON	ATX soft power switch
3-4	RES	Reset function
5-6	SMI	External SMI
7-8	SPEAKER	Speaker

Connector : **RES1**
 Type : onboard 2-pin header



Pin	Description
1	RES
2	GND

Connector : **HLED1**
 Type : onboard 2-pin header



Pin	Description
1	HLED1+
2	GND

Connector : **PLED1**
 Type : onboard 2-pin header



Pin	Description
1	PLED1+
2	GND