

## **Chapter 1**

### **INTRODUCTION**

The MICRO NLX BX4 mainboard is a high-performance personal computer mainboard based on Intel® Pentium® II processor. It combines ATI® 3D RAGE 128VR/Rage XL/Rage Pro AGP graphics accelerator, YAMAHA® YMF740C PCI enhanced audio, and Intel® 82559 10/100M Ethernet. The Pentium® II processor supports MMX™ (Multimedia Extension) technology.

The mainboard uses the highly integrated Intel® 82443BX chipset to support the PCI/ISA and Green standards, and to provide the Host/AGP bridge. The Intel® 82371EB chipset integrates all system control functions such as ACPI (Advanced Configuration and Power Interface). The ACPI provides more Energy Saving Features for the OSPM (OS Direct Power Management) function. The Intel® 82371EB chipset also improves the IDE transfer rate by supporting Ultra DMA/33 IDE that transfers data at the rate of 33MB/s.

The mainboard also supports the System Hardware Monitor Controller. This function includes: CPU /power supply/chassis fan revolution detect, CPU/system voltage monitor, system temperature monitor, and chassis intrusion detect.

## **1.1 Mainboard Features**

### **CPU**

- Slot 1 for Pentium® II/III or Celeron™ processor.
- Supports 233MHz, 266MHz, 300MHz, 333MHz, 350MHz, 400MHz, 450MHz, and faster processor speeds.
- Core/Bus ratios are x2, x2.5, x3, x3.5, x4, x4.5, x5, x5.5, x6 and higher.

### **Switching Voltage Regulator**

- On-board switching mode DC-DC Step Down Regulator.
- Conforms to Intel® VRM ver 8.2 specifications.
- Over-Voltage and Over-Current protection.

### **Chipset**

- Intel® 82440BX AGP chipset.

### **Clock Generator**

- 66.6MHz and 100MHz clocks are supported.

### **Main Memory**

- Supports four memory banks using two 168-pin unbuffered DIMM.
- Supports a maximum memory size of 256MB (8M x 8) or 512MB (16M x 4) registered DIMM only.
- Supports ECC(1-bit Error Code Correct) function.
- Supports 3.3v SDRAM DIMM.

### **Video**

- ATI® RAGE 128VR/Rage XL/ Rage Pro
  - Running on AGP BUS.
  - Onboard 8MB SGRAM (optional 4MB).
  - 3D Acceleration.
  - AGP 2x mode (133MHz) support pipelined and sideband protocols.

**System Hardware Monitor**

- This can be used with Intel® LDCM to monitor system voltage, system temperature & fan rotation speed.
- This can also be used to monitor overall system status over the network.
- System temperature sensor: (TOP Tech)
  - detect Pentium® II processor's temperature.
- System voltage monitor:
  - monitor CPU core voltage, CPU interface voltage, 3.3v,  $\pm 12v$ ,  $\pm 5v$ , VBAT
- Fan speed monitor:
  - monitor control chassis fan, power fan & CPU cooling fan speed.

**Power Management Features**

- Doze/Standby/Suspend mode.
- System management mode compliant.
- Support APM 1.2.
- Meet ACPI spec.
- PC97/98 compliant.

**Audio**

- YAMAHA® YMF740C Audio Controller.
- Sound Blaster PRO Compatible.
- Support Plug and Play:
  - stereo 16-bit A/D
  - stereo 16-bit D/A
- Stereo enhancement support.
- Advanced power management.
- Maximum 32 voice xG capital wavetable.
- Synthesizer including GM compatible.

**Network**

- Intel®82559 10/100M Ethernet.
- WFW baseline & NET PC specs compliant.
- Advanced Power Management (ACPI support)
- Magic packet filtering to wake-up LAN.
- ARP & FLEXIBLE frame filtering.
- Software drivers are backwards compatible.
- IP checksumming in hardware.

**Note:** Requires an ATX power supply with 720mA 5VSB (5v Stand by).

**Rear Mainboard Connectors**

- PS/2 type keyboard/mouse connector.
- Two COM port connectors.
- One Printer port with SPP/EPP/ECP function.
- RJ-45 LAN connector.
- Audio connector
- VGA port

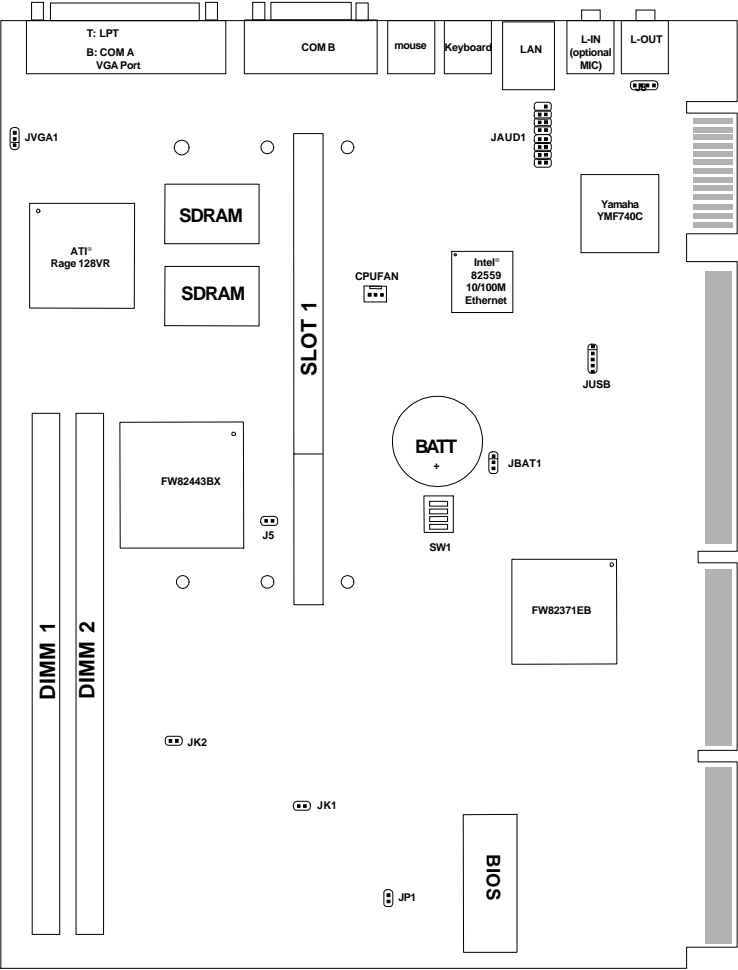
**Dimension**

- MICRO NLX Form Factor: 20.3cm(L) x 25.4cm(W) x 4 layers PCB.

**Other Features**

- Bulk Erase Flash ROM.
- Supports DMI.
- System Wake-up by modem.
- System Wake-up by alarm.
- Soft-power off. (Windows®95)
- Polyfuse function.
  - this function works when the electric current is larger than 2A. It will become an open circuit to protect your mainboard. Turn the power off for 1-3 secs for polyfuse to recover.
- LAN wake-up.
- Restore AC power loss status.

1.2 Mainboard Layout



MS-6131 Micro NLX BX6 Mainboard