

## Main Features

- Intel® Atom™ Dual-Core D2550/1.86GHz processor
- Intel® NM10 Express chipset
- Dual 204-pins DDR3 SO-DIMMs support max. 4GB SDRAM memory
- Support VGA/HDMI, VGA/LVDS or HDMI/LVDS dual displays
- 6 x USB, 4 x COM, 2 x GbE, 2 x SATA, 1 x LPT
- Audio Mic-in/Line- out, (internal Line-in)
- 2 x Mini-PCIe (1 x full/SIM tray, 1 x half-size), 1 x PCI
- Single +12VDC input by AT/ATX mode

## Product Overview

NEX 604 is a Mini-ITX industrial MB embedded Intel® Atom™ D2550 1.86GHz dual-core processor, which integrated Intel® HD graphic controller SGX545 to support 640MHz/DX9 NEX 604 supports VGA, LVDS (1 x ch. 24-bit up to 1440 x 900 @ 60Hz) and HDMI (1080p) by dual displays interface as standard along with two DDR3 SO-DIMMs for max 4GB memory.

NEX 604 is equipped with Intel® NM10 Express chipset to provide two SATA 2.0 for SSD, six USB2.0 (2 x USB to 2 x mPCIe slots), two GbE by Realtek RTL8111E PCIe LAN controllers, two Mini-PCIe slots for one support full-size card with SIM tray and one half-size slot for standard add-on I/O application. The HDMI and full I/O function supports make NEX 604 well fit for data logging, mobile communication, networking, gateway and embedded focus applications.

## Specifications

### Embedded Support

- Intel® Atom™ processor D2550 1.86GHz CPU

### Main Memory

- Dual 204-pin SO-DIMMs support DDR3 up to 4GB SDRAM 800/1066MHz

### Chipset

- Intel® NM10 Express chipset

### BIOS

- AMI BIOS
- Plug & Play support
- Advanced power management
- Advanced configuration & power interface
- 16M bits SPI ROM

### On-board LAN

- 2 x Realtek 8111E PCI Express Gigabit Ethernet
- Support boot from LAN (PXE)
- 2 x RJ45 with LEDs built-in 2 x dual stackable USB type A connectors on edge I/O

### Display

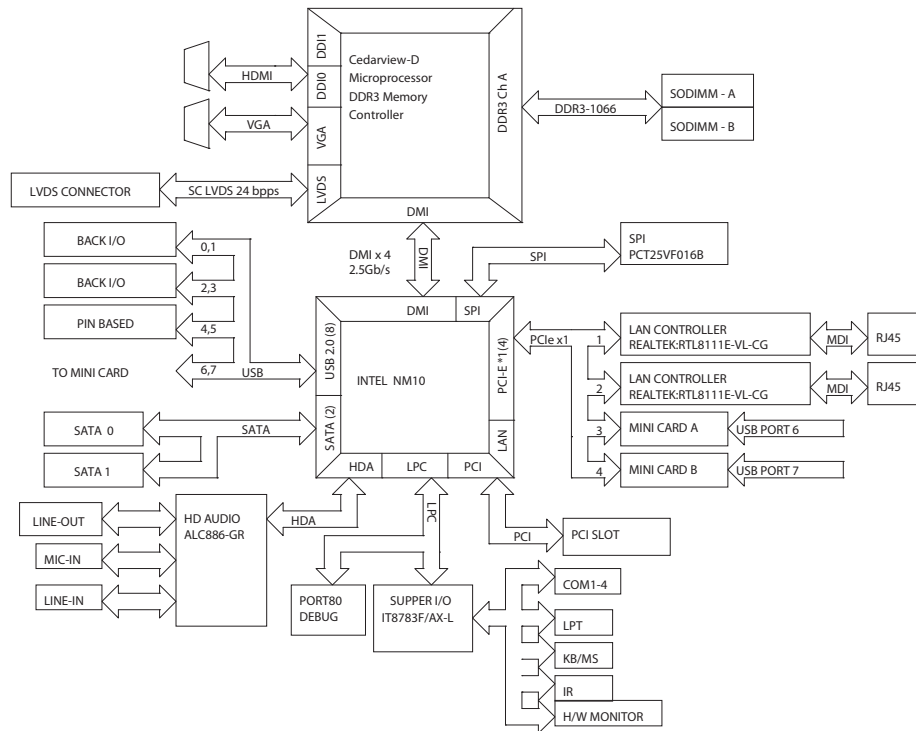
- New 2-chips solution 32nm package Intel® Atom™ processor D2550 integrated 3D graphics engine SGX545, to support up to 640MHz/DX9, and provides multi-options for high-resolution displays

- Analog VGA interface:
  - 1 x VGA by DB15 connector
  - Resolution up to 1920 x 1200 75Hz
- HDMI interface:
  - 1 x HDMI connector
  - Resolution up to 1920 x 1200
- LVDS interface:
  - Single (24-bit) LVDS panel, resolution up to 1440 x 900 by DF13 20-pin LVDS connector
  - Inverter (LVDS panel backlight) interface:
    - 1 x 7-pins CCFL for LCD panel backlight inverter
- Audio:
  - Realtek ALC886-GR High Definition codec
  - 1 x Mic-in/1 x Line-out by audio jack on edge I/O and 1 x Line-in by internal 4-pins header
- Expansions:
  - 2 x Mini-PCIe (1 x full-size/SIM tray and 1 x half-size slots)
  - 1 x PCI slot (32bit/33Mhz)

### I/O Interfaces-Front

- Serial port: 4 ports
  - COM1, RS232 by DB-9 male on edge I/O
  - COM2, 3, 4 ports support 3 x RS232 by three 2 x 5-pins box-headers
- USB2.0: 8 ports
  - 4 x ports by 2 x dual stack USB2.0 on edge I/O (port 0 ~ 3)

## Block Diagram



- 2 x ports by 2 x 5-pins header pitch 2.54mm (port 4 ~ 5)
- 2 x ports to Mini-PCIe slots (port 6, 7)
- 2 x 5-pins header for power LED and HDD active LED/reset/power on-off
- 2 x 4-pins fan connector (for CPU and system)
- 1 x 5-pins pin-headers IrDA (Tx/Rx) and 1 x 4-pins pin-header for SMBus
- 2 x 13-pins box-header for legacy parallel port/LPT

### I/O Interfaces- Rare

- 1 x 5-pins AT power connectors for DC + 12V input
- 1 x dual stack PS2 for keyboard/mouse
- 1 x dual stack DB9 male for COM1 + DB15 female VGA
- 1 x HDMI connector
- 2 x RJ45 LAN + dual stack USB connectors
- 1 x Mic-in/1 x Line-out Jack

### Watchdog Timer

- Watchdog timeout can be programmable by Software from 1 second to 255 seconds and from 1 minute to 255 minutes (Tolerance 15% under room temperature 25°C)

### Storage

- 2 x SATA 2.0 ports
- 2 x 4-pins power connectors for SATA/HDD

### System Monitor

- Monitoring of 4 voltages and 2 temperatures
- 4 voltage (Vcore, +12V, +3.3V, 5V)
- 2 temperatures (CPU, System)
- 2 fans speed detection

### On-board RTC

- On-chip RTC with battery backup
- 1 x External Li-Ion battery

### Power Input

- Support AT and ATX mode (1 x 3pins) by jumper setting

### Power Requirements

- Power requirement: DC +12V Input

- 1 x 4-pins Mini-DIN AT power connector on edge I/O,
- One 2 x 2-pins ATX power connector

### Dimensions

- Mini-ITX form factor/170mm (L) x 170mm (W) (6.7" x 6.7")

### Environment

- Operating temperature: -15°C to 60°C
- Storage temperature: -20°C to 85°C
- Relative humidity: Operating 10% to 90%, non-condensing

### Certifications

- CE approval
- FCC Class A

## Ordering Information

- NEX 604-2550 (P/N: 10G00060403X0) RoHS Compliant**  
Mini-ITX, embedded Intel® Atom™ Dual-Core D2550/  
NM10, 2 x DDR3, VGA/LVDS/HDMI, 2GbE, 2SATA, 4COM, 6USB,  
2mPCIe, PCI and +12VDC input
- NEX 604/NEX 605 CPU Cooler (P/N: 5050300517X00)**  
Optional CPU cooler for NEX 604/NEX 605