Intel® Embedded Development Board 1 - N450, D510 Schematics

Compute Module Schematics supporting Intel® Embedded Development Board 1-N450 and Intel® Embedded Development Board 1-D510

April 2011

Revision 002
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# Revision History

<table>
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<th>Revision Number</th>
<th>Description</th>
<th>Revision Date</th>
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<tr>
<td>324767</td>
<td>002</td>
<td>Added Block Diagram for the N450/DS10 + ICH8M platform.</td>
<td>April 2011</td>
</tr>
<tr>
<td>324767</td>
<td>001</td>
<td>Initial release.</td>
<td>January 2011</td>
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1 Introduction

This document reflects the Intel® Atom™ Processors 400 and 500 Series CPU module of the Intel® Atom™ Development Board 1 Complex. The CPU module is installed in a companion carrier board implemented in a standard Mini-ITX form factor. Schematics for the carrier board are designated by Document #324768.

Note: While there are some specific layout guidance notes in this schematic, layout designers should consult the Intel® Atom™ Processors 400 and 500 Series with Intel® 82801HM I/O Controller Design Guide for the most complete set of layout requirements.

1.1 Configurations

Design configuration reflected in the schematic supports the Intel® Atom™ Processor N450. Configuration changes to accommodate the Intel® Atom™ Processor D510 are listed throughout the schematic. Table 1 summarizes the configuration differences.

Table 1 Configuration Changes

<table>
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<th>Schematic Sheet #</th>
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<tr>
<td>U201A</td>
<td>2</td>
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<td>DNP</td>
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<td>R1714</td>
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<tr>
<td>U2001</td>
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<td>R2001</td>
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</tr>
<tr>
<td>R2017</td>
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<td>DNP</td>
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1.2 Related Documents

Table 2 is a partial list of the available collateral. For the complete list, contact your local Intel representative.

Table 2 Related Documents

<table>
<thead>
<tr>
<th>Document</th>
<th>Document No./Location</th>
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<tbody>
<tr>
<td>Processor and I/O Controller -Related Documents</td>
<td></td>
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## Introduction

<table>
<thead>
<tr>
<th>Document</th>
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<tbody>
<tr>
<td>Intel® Atom™ Processors 400 and 500 Series with the Intel® 82801HM I/O Controller Platform Design Guide</td>
<td>Contact your local Intel representative for the latest revision</td>
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<tr>
<td>Intel® Atom™ Processors 400 and 500 Series with the Intel® 82801HM I/O Controller Platform Schematics</td>
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<td>Intel® Atom™ Processors 400 and 500 Series with the Intel® 82801HM I/O Controller Mechanical and Cadence / OrCad Symbol Files</td>
<td></td>
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<tr>
<td>Intel® Atom™ Processor N400 Series Datasheet Volumes I &amp; II</td>
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<tr>
<td>Intel® Atom™ Processor D400 and D500 Series Datasheet Volumes I &amp; II</td>
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<td>Intel® Atom™ Processor N400 Series – Sightings Report (SR)</td>
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<td>Intel® Atom™ Processors 400 and 500 Series with the Intel® 82801HM I/O Controller Platform Datasheet Addendum</td>
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<td>Intel® I/O Controller Hub 8 (ICH8) Family Datasheet</td>
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<td>Intel® I/O Controller Hub (Intel® ICH8M) Specification Update</td>
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INTEL CORPORATION

Embedded & Communications Group

Intel® Embedded Development Board 1-N450

Note: Development Boards will be marked with Viking Modular Solutions*
Note:
Processor is a stuffing option.

Design supports both Intel(R) Atom Processor N-450 and Intel(R) Atom Processor D-510.

1.) This schematic reflects the Intel® AtomTM Processors 400 and 500 Series CPU Module of the Intel® AtomTM Development Board 1 Complex. The CPU module is installed in a companion carrier board implemented in a standard Mini-ITX form factor. Schematics for the carrier are designated by Document #324769.

2.) Design configuration reflected in the schematic supports the Intel® AtomTM N450 Processor. Other configurations for the Intel® AtomTM D510 are listed throughout the schematic.

3.) Changes necessary to support the Intel® AtomTM D510 are documented in a Table on Sheet 2C (S2001, R2015, R2001, R2017), Note on Sheet 4 (R411) and a Note on Sheet 17 (R1714).

4.) While there are some specific layout guidance notes in this schematic, layout designers should consult the Intel® AtomTM Processors 400 and 500 Series with Intel® 82801MM I/O Controller Design Guide for the most complete set of layout requirements.
Configuration

Install to disable Flash Security

Remove to enable Flash Security
Pending.
**INRUSH CURRENT LIMIT**

- **VOUT = 0.27V/A**

**INPUT CURRENT MONITOR**

- **INPUT POWER CONDITIONING**
  - **3.3VDC ALWAYS ON**
    - 150mA MAX

**POWER FOR EMBEDDED CONTROLLER**

**POWER FOR SUSPEND WELL**

**POWER FOR FULL ON OPERATION**

**INPUT POWER CONDITIONING**

- **3.3VDC TO SYSTEM**
  - **2.5A APPROX**

**POWER FOR EMBEDDED CONTROLLER**

**POWER FOR SUSPEND WELL**

**POWER FOR LAN MGMT**

**POWER FOR FULL ON OPERATION**

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**VCC_12V0_RAW, Inrush Current Limit, Input Current Monitor**

**Title**

- **VCC_12V0_RAW, Inrush Current Limit, Input Current Monitor**

**Size Document Number Rev**

- **324767 E 23 26**

**Date**

- **Sunday, June 6, 2010**

**Sheet**

- **1 of 26**

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**Q2306**

- NST848BF3T5G
  - 3SOT-1123

**Q2305**

- NTGS1135P
  - 6TSOP_3mm

**R2311**

- 100KR0402

**R2315**

- 4.7K R0402

**C2302**

- 0.1uF/16VC0201

**C2303**

- 1.0uF/25VC0603

**U2301**

- LM5069MM-110MSOP_4.9MM

**U2302**

- LMP8601MA
  - 8SOIC_6MM

**T2301**

- TPTPSMT

**T2302**

- TPTPSMT

**T2303**

- TPTPSMT

**T2304**

- TPTPSMT

**T2305**

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**T2306**

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