1 Scope

2 Normative references

3 Definitions, symbols, abbreviations, and conventions

4 General

4.1 General overview

4.2 Cables, connectors, signals, transceivers

4.3 Physical architecture of bus

4.4 Driver-receiver connections

4.5 Physical topology details and definitions

4.6 Bus loading

4.7 Termination requirements

4.8 Device addressing

4.9 Clocking methods for data transfer

4.10 Data transfer mode

4.11 Negotiation

4.11.1 Negotiation introduction

4.11.2 Negotiation algorithm

4.11.3 When to negotiate

4.11.4 Negotiable fields

4.11.5 Negotiation message sequences

4.12 Protocol
5 Interface connectors and cabling

5.1 Interface connectors and cabling overview

5.2 Connectors

5.2.1 Connector 1

5.2.2 Connector 2

5.2.3 Connector contact assignments

5.3 Cables

6 Electrical characteristics

6.1 Electrical characteristics overview

6.2 ADP compliance points

An ADP compliance point is a defined point in the ADP physical interconnection. At an ADP compliance point a compliant device shall meet the ADP interoperability specifications. ADP compliance points always occur at separable connectors. Table n lists the ADP compliance points.

<table>
<thead>
<tr>
<th>Compliance point</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>( T_t )</td>
<td>intra-enclosure</td>
<td>Target port connector; transmit serial port</td>
</tr>
<tr>
<td>( T_r )</td>
<td>intra-enclosure</td>
<td>Target port connector; receive serial port</td>
</tr>
<tr>
<td>( C_t )</td>
<td>inter-enclosure</td>
<td>External cabinet connector; transmit serial port</td>
</tr>
<tr>
<td>( C_r )</td>
<td>inter-enclosure</td>
<td>External cabinet connector; receive serial port</td>
</tr>
</tbody>
</table>

6.3 ADP reference points

An ADP reference point is a defined point in the ADP physical interconnection. Every ADP compliance point is an ADP reference point. Table n lists the ADP reference points in addition to the ADP compliance points listed in Table n.

<table>
<thead>
<tr>
<th>Reference point</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>( I_t )</td>
<td>Initiator port connector; transmit serial port</td>
</tr>
<tr>
<td>( I_r )</td>
<td>Initiator port connector; receive serial port</td>
</tr>
</tbody>
</table>
6.4 Signal states

6.4.1 Differential signals

6.4.2 Persistent active signals

6.4.3 Single ended signals

Single ended signals always exist in one of two states: true (i.e., asserted) or false (i.e., negated). The device that asserts a signal shall actively drive the signal to the true state. A device that negates a signal may either actively drive the signal to the false state or refrain from driving the signal to either state. A non-driven signal goes to the false state because the bias of the terminator pulls the signal false.

NOTE n - Actively negated signals have the advantage of a higher noise margin over signals negated via terminator bias.

6.5 Sense connection

A Sense connection is a complete uni-directional signal path from the output reference point of one ADI device to the input reference point of a second ADI device. A sense connection shall use persistent active signalling.

6.6 Signal connection

A Signal connection is a complete uni-directional signal path from the output reference point of one ADI device to the input reference point of a second ADI device. A signal connection shall use single ended signalling.

6.7 Transmit-receive connection

A Transmit-receive (Tx-Rx) connection is a complete simplex signal path from the output reference point of one ADI device to the input reference point of a second ADI device. A Tx-Rx connection shall use differential signalling.

This section specifies characteristics of the electrical signal and the signaling media at the compliance points T, T, C, and C in a Tx-Rx connection.

All Tx-Rx connections shall operate with a Bit Error Rate (BER) < 10^{-12}. The parameters specified in this section support meeting the BER requirement under all conditions including the minimum input and output amplitude levels.

Specifications are based on ensuring interoperability across multiple vendors supplying the technologies (transceivers and cable plants) under the tolerance limits specified in the document. Tx-Rx connections operating at the maximum specified distance may require some form of equalization (e.g., transmitter pre-emphasis, receiver adaptive equalization, or passive cable equalization) to enable the connection to meet the signal requirements. A specific installation may obtain a longer distance by engineering a Tx-Rx connection based on knowledge of the technology characteristics and the conditions of installation and operation (e.g., a closed engineering environment); however, such distance extensions are outside the scope of this standard.

Table n defines the general interface characteristics.

<table>
<thead>
<tr>
<th>Characteristic Units</th>
<th>2,4 kbps</th>
<th>4,8 kbps</th>
<th>9,6 kbps</th>
<th>19,2 kbps</th>
<th>38,4 kbps</th>
<th>57,6 kbps</th>
<th>76,8 kbps</th>
<th>115,2 kbps</th>
<th>153,6 kbps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data rate (bps)</td>
<td>2400</td>
<td>4800</td>
<td>9600</td>
<td>19200</td>
<td>38400</td>
<td>57600</td>
<td>76800</td>
<td>115200</td>
<td>153600</td>
</tr>
</tbody>
</table>
### 6.8 Eye Masks

### 6.9 Transmitted signal characteristics

### 6.10 Termination

### 6.11 Bus timing values

### 6.12 Timing description

### 6.13 Measurement points

### 6.14 Timing parameters

### 6.15 Setup and hold timings

### 7 Bus composition

#### 7.1 Bus composition overview

Table n defines the connections that make up the ADP bus.

#### Table n – ADP bus connections

<table>
<thead>
<tr>
<th>Connection name</th>
<th>Type</th>
<th>Connection definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attentionᵢ</td>
<td>O</td>
<td>Attentionᵢ is a signal connection. A target port may use this connection to signal an attention request to the initiator port.</td>
</tr>
</tbody>
</table>
### 7.3 Connection states

<table>
<thead>
<tr>
<th>Connection name</th>
<th>Type</th>
<th>Connection definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset</td>
<td>O</td>
<td>Reset, is a signal connection. An initiator port may use this connection to signal a reset request to the target port.</td>
</tr>
<tr>
<td>Sense</td>
<td>O</td>
<td>Sense is an auxiliary sense connection. This standard does not define the use of this connection.</td>
</tr>
<tr>
<td>Sense</td>
<td>O</td>
<td>Sense is a sense connection. A target port uses this connection to sense the presence or absence of an initiator port on the ADP bus. When present, the initiator port will source a persistent active signal on this connection.</td>
</tr>
<tr>
<td>Sense</td>
<td>O</td>
<td>Sense is a sense connection. An initiator port uses this connection to sense the presence or absence of a target port on the ADP bus. When present, the target port will source a persistent active signal on this connection.</td>
</tr>
<tr>
<td>TX-{Rx,}</td>
<td>M</td>
<td>TX-Rx is a Tx-Rx connection. An initiator ports uses this connection to send serialized data. Target ports receive serialized data on this connection.</td>
</tr>
<tr>
<td>TX-{Rx,}</td>
<td>M</td>
<td>TX-Rx is a Tx-Rx connection. Target ports use this connection to send serialized data. Initiator ports receive serialized data on this connection.</td>
</tr>
</tbody>
</table>