4 BOOTSTRAP METHODS

4.1 BOOTSTRAP METHODS

There are four different methods to bootstrap ETRAX 100. They are presented in 4-1 below.

The cache is always initialized, regardless of bootstrap method. Two bus status pins, BS<2:1>, are sampled upon reset going high. The levels of the bus status pins decide the value of two bits in an internal register. These bits are then used to determine what bootstrap method to use.

Values on pins BS<2:1> at reset	Bootstrap method	Description
00	Normal bootstrap	The execution starts at address 0x80000002.
01	Serial bootstrap	Serial port 0 is used, configured at 9600-8N1(9600bps, 8 bits without parity, one start and one stop bit). A total of 784 bytes will be received. This data is stored in the cache, mapped to address 0x380000F0, where execution then starts.
10	Network bootstrap	The network bootstrap code is received in an Ethernet packet through the SNI or MII interface. The downloaded program can be up to 1484 bytes in this package, and will be stored in the cache. The first byte of the destination address is mapped to address 0x380000E6, and execution will start at address 0x380000F4.
11	Parallel bootstrap	Parallel port 0 is used. A total of 784 bytes will be received. This data is stored in the cache, mapped to address 0x380000F0, where execution then starts.

Table 4-1 Bootstrap methods

4.2 NETWORK BOOTSTRAP

When network bootstrap is used, the packet received must be an Ethernet packet (formatted to the IEEE 802.3 standard), with the following contents in hexadecimal form (note that currently not all contents are checked, but may be in the future):

- <01 40 8c 00 01 00> - Destination address. This is a multicast address within the Axis Ethernet address block. This address is fixed.
- <XX XX XX XX XX XX> - Source address. The address of the host transmitting the bootstrap packet. This address is not checked.
- <type-length (2bytes)> This is currently not checked, but the contents are recommended to follow the 802.3 standard.
- <AA AA 03 00 40 8C 88 56> - A SNAP header featuring the Axis vendor code (same as the Ethernet address block). The Axis ether-type, specifically assigned for this purpose. This is currently not checked, but is strongly recommended for network interoperability.
- <FF FF FF FF> - A tag signalling this packet as a bootstrap datagram. This is currently not checked, but is recommended for re-use of the Axis SNAP header.
- <00 00 00 00> - The bootstrap packet sequence number. The number must consist of only zeros in the first packet in the bootstrap sequence. This field is fixed.

After this header, the network bootstrap code starts. The address is 0x380000F4 and the rest of the packet can be as long as 1484 bytes.

The SNI and MII interfaces are selected by the value of the MDIO-pin at start-up:

MDIO bit value	Interface
0	SNI
1	MII