▓ Lattice ®
Semiconductor Corporation

ispDOWNLOAD™ Cable
For Programming Lattice ISP™ Devices

Features

- **CABLE AND PARALLEL PORT ADAPTER FACILITATE IN-SYSTEM PROGRAMMING OF ISP™ DEVICE FAMILIES**
  - **Simplifies In-System Programming**
  - **Ideal for Design Prototyping and Debugging**
- **SUPPORTS ALL ISP DEVICE FAMILIES**
- **EASY-TO-USE CONNECTORS**
  - **25-Pin Adapter Connects to PC Parallel Printer Port**
  - **6' Cable Offers Printed Circuit Board Interface:**
    - **8-Position, .100 Inch Center Connector**
    - **10-Position, 2 x 5 JTAG Connector**

ispDOWNLOAD Cables for the PC

The ispDOWNLOAD Cables for the PC are designed to facilitate in-system programming of all Lattice Semiconductor ISP devices on a printed circuit board directly from the parallel port of a PC. With in-system programmability, hardware functions can be programmed and modified in real-time on the system board to give additional product features, shorten system design and debug cycle time, enhance product manufacturability and simplify field upgrades. After completion of the logic design and

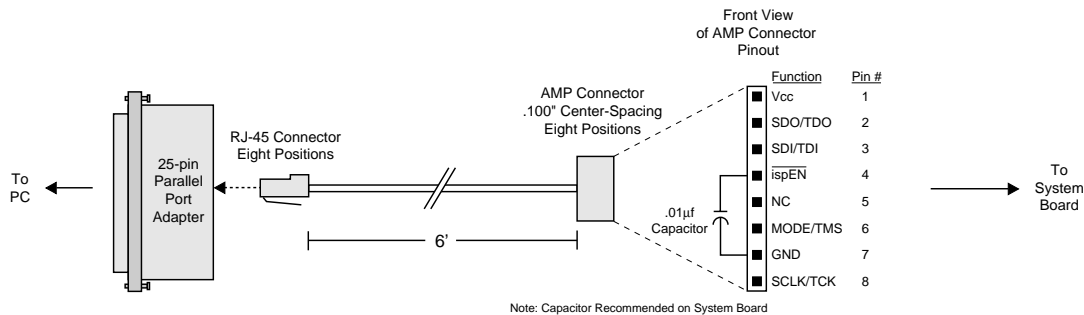**Figure 1. ispDOWNLOAD Cable In-System Programming Interface for the PC (pDS4102-DL2)**

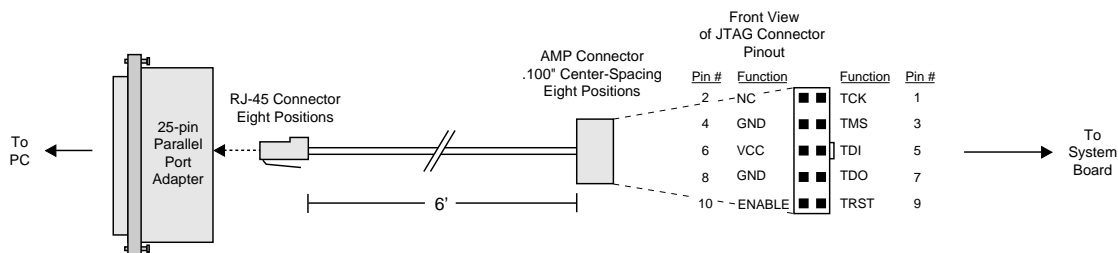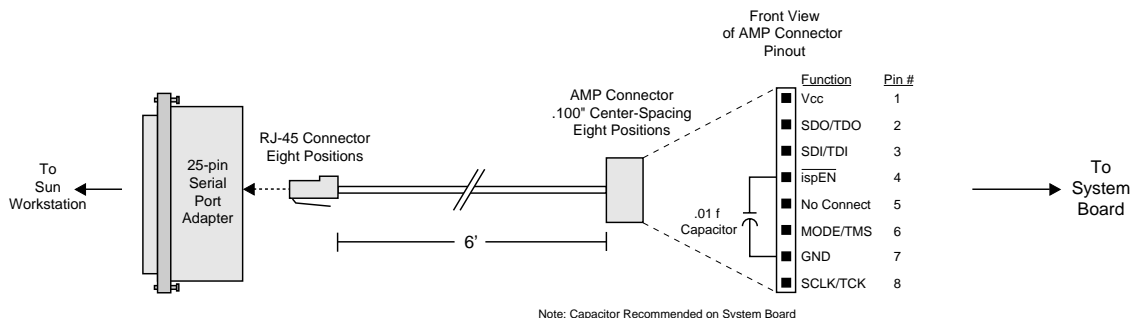**Figure 2. ispDOWNLOAD Cable In-System Programming Interface for the PC (HW7265-DL2)**

Figure 3. ispDOWNLOAD Cable In-System Programming Interface for the Sun Workstation

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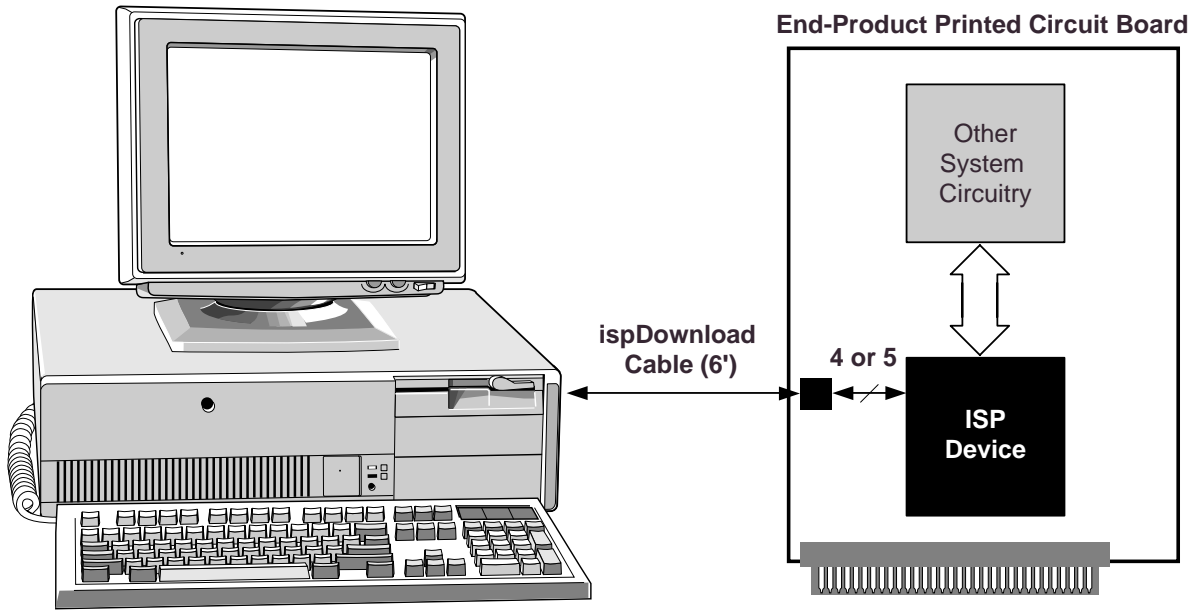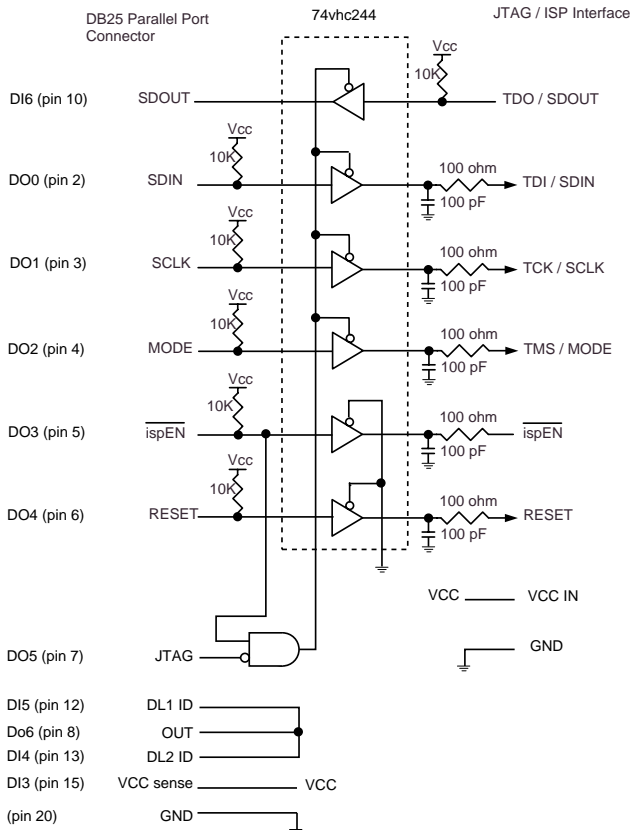**Figure 4. Configuring In-System Programming from a Remote System**

Figure 5. Buffered 25-Pin Parallel Port Adapter

creation of a JEDEC file by the ispDesignEXPERT™ Systems or ispGDX Development System, Lattice's ispVM™ System software programs devices on the end-product board. Programming signals are generated from the parallel port of a PC and directed through the isp-DOWNLOAD Cable to the device. With one of these cables and a connector on a board, no additional components are required for programming. The ispVM System software automatically generates the appropriate ISP command, programming address and data from the JEDEC fuse map information. ispVM System software is included with all Lattice design tool products.

ispDOWNLOAD Cable for Sun Workstation

The ispDOWNLOAD Cable for the Sun Workstation provides a quick and easy means for programming all Lattice ISP devices from a Sun Workstation. Setting up the workstation ispDOWNLOAD cable is as simple as connecting the serial interface adapter to the RS-232 port of the workstation and connecting the ispDOWNLOAD cable assembly to the target ISP system.

The serial interface adapter contains an embedded controller that handles programming commands from the host workstation to the target system and processes them for proper ISP operation. Additional features of the serial interface adapter include:

- Automatic baud rate detection for 300 baud to 115,200 baud operations

- Operational at supply voltages of 3.3V or 5V

- Standard Lattice ISP programming interface and ispJTAG™ interface (IEEE 1149.1) support

- RJ-45 interface jack for easy ISP cable assembly replacement

- Compact size and low power requirements

- Easy interface to the Lattice ISP Engineering Kit Model 100 for single ispLSI® device programming

The ispDOWNLOAD cable assembly provides an interface between the ISP signals from the serial interface adapter and the target ISP system. The features of the ispDOWNLOAD cable assembly include:

- Six feet of eight-conductor flat cable with an RJ-45 connector on one end an an eight-position female header assembly on the other end

- RJ-45 connector for reliable and easy interfacing to the serial interface adapter

- Eight-position female header connector with .10" pin spacing for quick and low-cost interfacing to ISP target systems with a mating header pin strip. Keying is provided on the header connector for proper interfacing orientation

- Header connector assembly with super flexible wiring for durability

Product Ordering Information

Product Description	Part Number
ispDOWNLOAD Cable (for the PC only). Contains 6' cable with RJ45 and 8-pin AMP connector and parallel port adapter.	pDS4102-DL2
ispDOWNLOAD Cable (for the PC only). Contains 6' cable with RJ45 and 10-pin JTAG connector and parallel port adapter.	HW7265-DL2
ispDOWNLOAD Cable (for the Sun Workstation only). Contains 6' cable with RJ45 and AMP connectors, serial interface adapter for the RS232 Workstation port, documentation and ISP Daisy Chain Download Software for the Sun Workstation.	pDS4102-WS

Technical Support Assistance

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