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Multi-Computing Companion Board

White Paper

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Introduction

Auriga's Multi-Computing Companion Board (MCCB) device fulfills the need existing in a variety of development and in-field environments for an inexpensive, reliable, easily programmable device capable of providing a means for an overall control of a multi-computing system on a continuous basis. MCCB is a miniature, embedded computer running Linux. It connects to your LAN through your choice of a LAN or a WAN interface. On the multi-computing end, MCCB can control up to 16 intelligent devices combined in a multi-computing pool of machines dedicated to a development or an industry task. For each of its targets, MCCB maintains the following monitoring and control mechanisms:

- TCP/IP connectivity over Ethernet line
- Serial console connectivity over a dedicated serial line
- Reset signal, or other type of a pin-resolution control over a dedicated relay line.

Software Interfaces

MCCB comes as a pre-installed intelligent system that runs Linux from ROM as soon as you power the device on. A Web-based interface can be used to configure the MCCB in your local facility or in field in a matter of minutes.

Once MCCB is configured, it provides a full range of software interfaces to the multicomputing targets. Those range from a command-line API to each individual target enabling an easy automation of the multi-computing system over Expect or similar programming toolkits to an advanced GUI for an on-line monitoring and control of the targets.

A local storage device implemented by MCCB allows you to configure it as a standalone or routing server, supporting today's modern multi-computing protocols such as DHCP, NFS, PXE, Samba, and much more.

Features

MCCB has the following features and capabilities:

- 3"x4" miniature device
- 16 serial lines to targets
- 16 SPDT relays with 100,000,000+ duty cycle
- 100mbit Ethernet connection to the multi-computing LAN
- Your choice of a 100mbit Ethernet connection or a WAN connection to the local network
- Local storage device based on the CompactFlash technology
- Dedicated serial line console for initial configuration on LAN

- Pre-installed, TCP/IP connected Linux device
- GUI configuration interface
- Command-line and GUI target control and monitoring interfaces.

Sample Applications

MCCB is capable of supporting a wide range of industrial and development applications. To provide just a few examples, MCCB is capable of serving as:

- An intelligent controller for a pool of intelligent devices in a multi-computing system, excelling especially in industrial applications based on today's industrial standards for the multi-computing such as CompactPCI, VME, and the others. MCCB provides a means for monitoring and controlling machines in the multicomputing pool, while decision making is made at the local control point over the software interfaces maintained by the MCCB.
- An intelligent controller in a testing framework for a multi-computing system. The ability of MCCB to provide access to a console of each target in the multicomputing pool, as well as trigger various events (reset, external signal, etc) at the multi-computing system on a per target basis, combined with the commandline interface to the above facilities, make MCCB an excellent fit for an automated testing harness based on the Expect scripting language or similar software toolkits.
- A tool for automation of final phases of a product manufacturing process. Oftentimes, manufacturing of an embedded product involves a firmware-level installation of software images into each device. MCCB provides a means for easing up this tedious work by letting you attach to multiple targets and run automated scripts on them in parallel.
- A portable boot server in a demonstration toolkit. Miniaturness of MCCB, combined with a wealth of modern boot and other standards, such as DHCP, NFS, Samba, supported by MCCB make it a perfect fit for a demonstration toolkit.

Availability

MCCB is scheduled for availability in the second quarter of 2002. Contact Auriga, Inc. for details.