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The system is designed based on an ARM7-based CPU (S3C4510) to provide firmware function as a NAT router. Multiple LAN connections and Wireless LAN connection will provide independent operation for local clients to share a single IP connection. Firmware binary image and configuration data is stored in external flash memory. 16M SDRAM is attached to S3C4510 for firmware runtime execution.

S3C4510 comes with a built-in NIC with PHY interface. The PHY interface is connected to a Marvell chip, which is a 4-port Ethernet switch with auto-uplink detection capability. The switch chip provides a high performance Ethernet switching circuit for wired LAN connections. Local Ethernet traffic will go thru the switch chip directly without CPU handling overhead. A 10MHz Crystal provides clock input for S3C4510 and CPU internally will run at 50MHz speed.

Two PCMCIA slots are connected to the local bus of S3C4510 with glue logic functions composed by two CPLD chip. The CPLD chips are programmed to translate ARM7 address/data line to compatible PCMCIA address/data signals. A 5V switching power is designed to provide stable voltage to the board and the PCMCIA slots.

The Wireless LAN (WLAN) connection is implemented by an external 802.11b PCMCIA adapter plugged in one of the PCMCIA slots. The firmware will implement the WLAN Access Point function and handle the traffic packet routing to destination Ethernet segment. One COM port is reserved for serial data connection, such as modem, bluetooth or any serial device. A Maxim MAX3243 is responsible for the UART interface signal processing. An ASIX88790 Ethernet NIC handles the shared Ethernet IP connection. It is a MAC+PHY product to eliminate circuit overhead and increase product stability.

For Presentation Gateway model, a VGA display adapter will be inserted into the second PCMCIA slot. Memory access cycle will be interpreted in the adapter if corresponding address is accessed..

The manufacturing process required Flash and CPLD pre-programmed. All the other components are on the one side of PCB therefore processing time per board can be reduced. Board will perform self-diagnostic and result will sent to extender boards. No extra host software is required.

Operation Details:

The firmware controls WAN device which is the NIC chip (ASIX88790) and LAN Ethernet device which is handled by Marvell switch chip. It also handle WLAN adapter driver. It will exam network packets from different network segments and route the packet to the correct destination ports.

Presentation Gateway firmware will translate the screen data sent from client and dump into VGA adapter memory. The video data will be delivered either by LAN or WLAN device port. For the Presentation Gateway model, video data will sent to on-board VGA memory on the second PCMCIA slot.

On the side of the circuit board are PCI-bus compatible connector which JTAG and debug signal lines are extended. While in mass-production process, JTAG and/or self-diagnostic firmware will transmit diagnostic status on the extended signal lines where test results can be further recorded.

Product Description:

The Wireless Presentation Gateway with Access Router and 4-Port Switch provides an ideal solution to connect multiple Windows clients to share a single LCD/DLP projector and also share different LAN interfaces including 4-Port Wired 10/100 Fast Ethernet and Wireless LAN network and broadband WAN Internet connections.