

Ai-Logix Boards Fail to Initialize

Issue

Systems with multiple Ai-Logix boards (4-6) may fail to initialize

Products Affected

All Ai-Logix PCI cards (except SmartTAP NGX) under Microsoft Windows 2000 Server.

Symptoms

Applications show fewer channels than expected, and/or cannot open certain boards

Board DSP LEDs fail to illuminate

Windows event log logs the following error:

"Global Memory mapping failed on brd nn" where nn is the board number

Applications compiled using a SmartWORKS SDK earlier than 2.7.0 may experience a blue screen upon board failure

Description

Ai-Logix boards are considered external devices by the Operating Systems they work under. External devices (PCI cards, disc drives, video adapters, etc.) are mapped into system memory using a unit of measure called a PTE, or Page Table Entry.

Ai-Logix boards require a contiguous memory region of 16MB along with 2MB in order to be successfully mapped in. It is possible that a system may have 20MB worth of PTEs available, but the largest contiguous region may be less than 16MB, in which case an Ai-Logix board would fail to initialize. Always bear in mind that the total number of PTEs available can vary widely from system to system.

All Ai-Logix boards require a total of 18MB except for the SmartWORKS NGX which only requires 2MB total.

Application

There is a way to estimate the number of boards your system will support by determining the number of PTEs available. The number of PTEs varies from system to system and varies with the number of devices mapped. Hence, this method of determining the number of Ai-Logix boards that can be loaded in a system is an estimate only.

1. First, evaluate how many PTEs are available after booting the system.

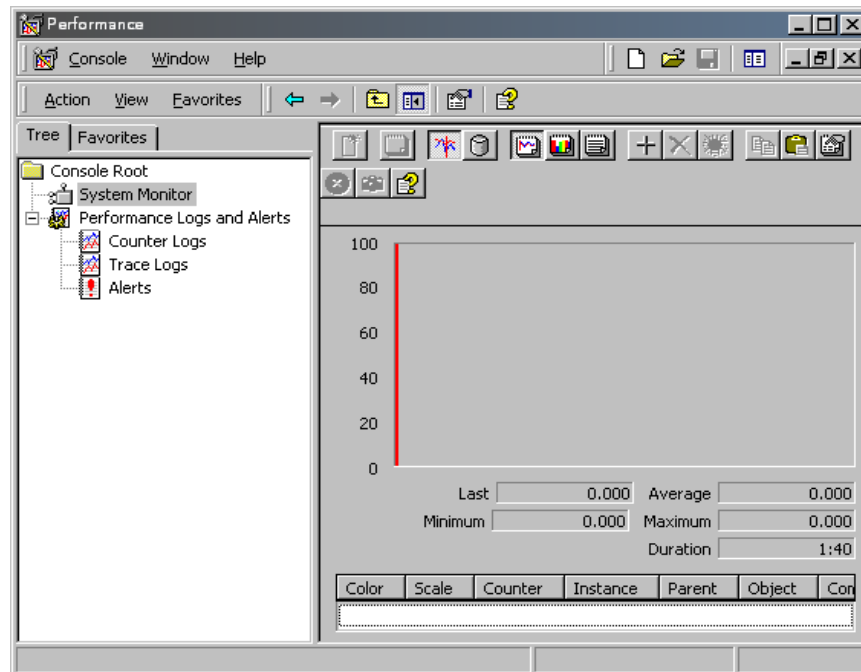
Run the Windows System Performance Monitor:

Start > Run > "perfmon",

or

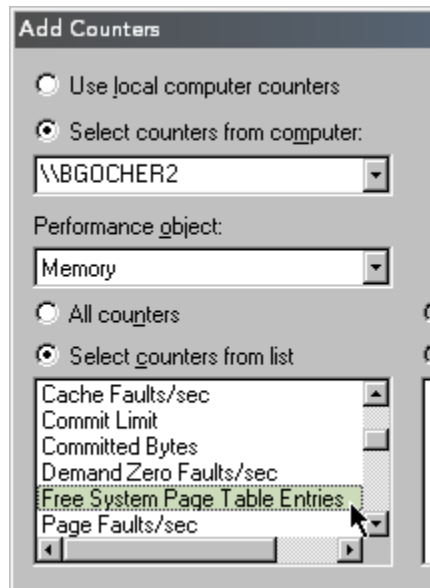
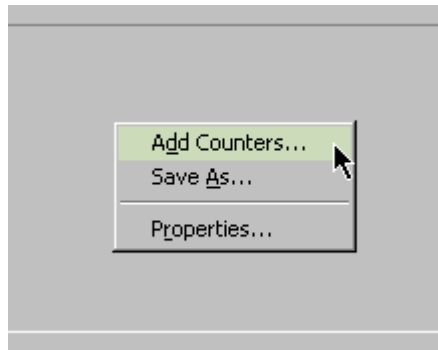
Start > Programs > Administrative Tools > Performance

TABLE 1: PERFORMANCE MONITOR



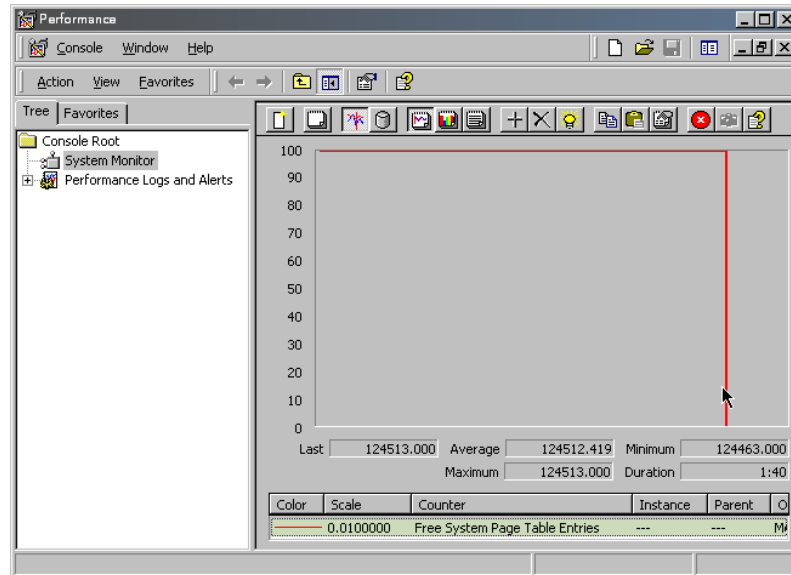
- Next, add the "Free System Page Table Entries" counter from the "memory" object. Right click inside the performance field and select "Add Counter" from the menu. In the window that appears, choose "Memory" from the Performance object menu, and "Free System Page Table Entries" from the counter list. When finished, Click "Add".

TABLE 2: ADD COUNTER



- The Performance Monitor will display several numbers. Use the "Last" number. For our example, the Last number is 124512. Each PTE is worth 4096 bytes of memory. $124512 * 4096 = 51,000,1152$ Bytes available.

TABLE 3: "LAST" NUMBER



- Ai-Logix cards require 18,878,464 Bytes for mapping. Hence, $51,000,1152 / 18,878,464 = 27.01$. 27 boards could theoretically exist in this system. Always bear in mind that the total number of PTEs available can vary widely from system to system. Some systems will be capable of far fewer boards.

Resolution

Ai-Logix engineering is currently working on a resolution which will be implemented in future product releases.