

CAMView Users Manual

INTRODUCTION

The MUSIC Semiconductors MU9C8358L Ethernet Filter Interface is a Quad 10/100 Mb Ethernet networking IC designed to perform all the necessary MAC address operations. The MU9C8338A device is a single port version of the MU9C8358L. When used in conjunction with any member of the MUSIC Semiconductor LANCAM Family both devices allow a database of 48-bit MAC addresses to be stored. The MUSIC Semiconductors MU9C8358L or MU9C8338A Evaluation Board allows a user to fully evaluate and become familiar with either Filter Interface. They are connected to a standard IBM compatible PC by means of the system printer port. This allows the user to run initialization code, change register values, add entries etc.

The CAMView LANCAM Viewer tool is a simple Windows application that can be used to view the contents of the LANCAM. It can be seen in Figure 1. The normal way the Viewer would be used is by running user generated software such as C code executable and then viewing the LANCAM contents using the Viewer. The Viewer allows the contents of the LANCAM to be viewed along with the current values of the STCURR and STPURG registers.

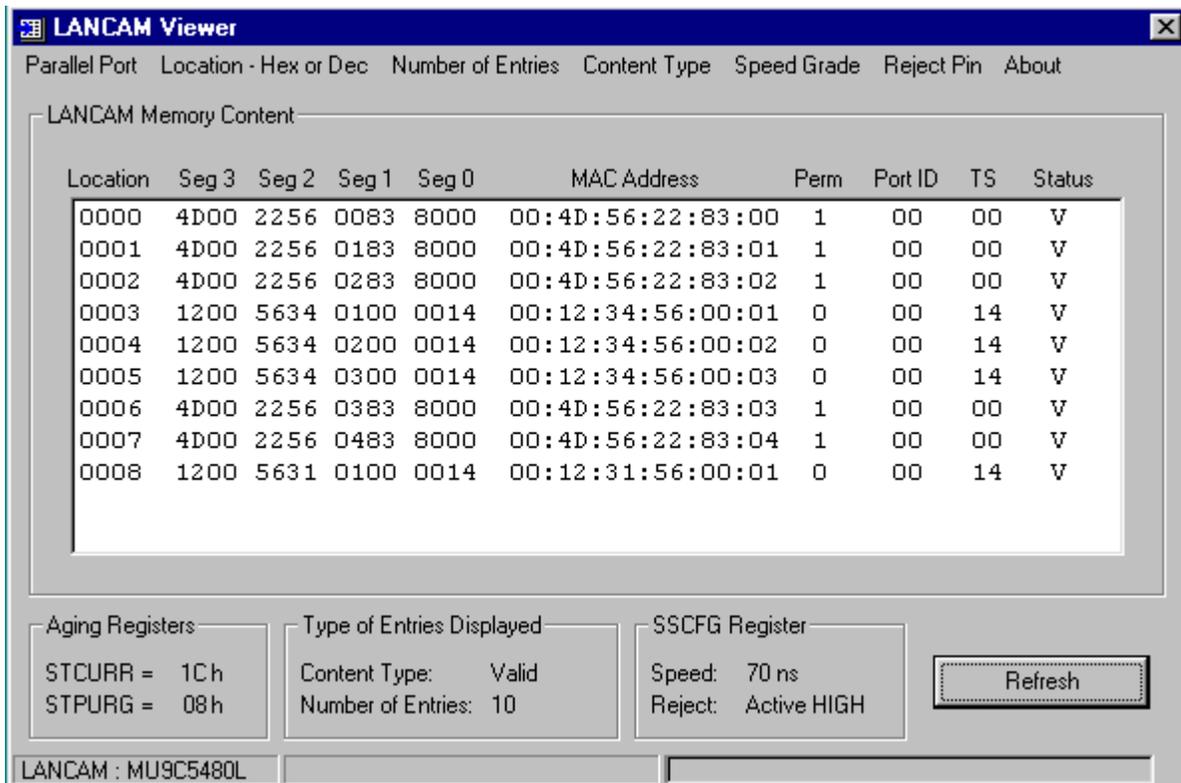


Figure 1: LANCAM Viewer

INSTALLATION

The installation process is as follows:

1. Insert the data CD titled: "MU9C8358L Evaluation Kit" or "MU9C8338A Evaluation Kit" in the CD drive.
2. Press the Windows START button and select "Run". Use "Browse" to select the "Setup.exe" file on the CD. The file is located in the CAMView directory. Do not select the Setup.exe file in the main directory as this installs the kit data files. Click "OK". Alternatively use "Windows Explorer" to locate the "Setup.exe" file from the CD drive. Once it is located, double click on the icon.
3. An Install window pops up that has the title "CAMView LANCAM Viewer". Inside this there is a smaller "Welcome" window. Press "Next" to continue.
4. A "User Information" window prompts you for your name and Company name. Enter this information if not automatically entered and press "Next".
5. A "Choose Destination Location" window prompts you to specify the default directory for all the files to be copied to your computer. You can either leave this directory as the default shown or use the "Browse" button to specify another. Once you are ready, press "Next" to continue.
6. A "Select Program Folder" window informs you that a new program folder will be created. You can either leave this folder as shown or change the settings. Once you are ready, press "Next" to continue.
7. A "Start Copying Files" window prompts you to press "Next" to start copying files and thus finish the installation. Press "Next" to continue. This will copy the LANCAM Viewer executable, documentation PDFs, and other associated files to your hard disk.
8. A "Setup Complete" window informs you that the installation has finished. Press "Finish" to complete the setup.

USING THE VIEWER

To run the CAMView software either select it from the START menu or double click on the icon using Windows Explorer. The user should make sure that there is a MUSIC Semiconductors MU9C8358L or MU9C8338A Evaluation board connected to the printer port and it is switched on. The software should work with all parallel port configurations. It shouldn't matter whether the port is configured as PS-2, EPP or ECP. The only stipulations are that the port used is located at address = 0x378 or 0x278 and that it is capable of bi-directional data transfer. Please ensure that your port is using one of these addresses. When the software is started, it attempts to locate the board using the Printer port at base address = 0x378. This

is the most common base address for the Printer port (LPT1).

If it is unable to locate an Evaluation board at address = 0x378, a dialogue box notifies the user of a problem and asks if they wish to use address 0x278. If you change the base address and it is still not able to locate the board, call MUSIC Semiconductors for further help. If no problems occurred, a viewer similar to the one shown in Figure 1 will launch. When it launches, the software will do the following in order to operate properly:

- Set the CHIPROL register to 0h to allow access to the System registers. (MU9C8358L only)
- Set the SSCFG and SMXSADACYC registers to specify 70 ns speed grade LANCAMs. (MU9C8358L only)
- Set the SSCFG register to specify that the Reject signal is active High. (MU9C8358L only)
- Set the SDCFG register to 1h to allow normal LANCAM operation.
- Initialize the LANCAM to allow the four segments of data to be read normally, This involves setting the background set of registers as follows:
 - Control register set to 8011h. This sets the LANCAM as 64 bits of CAM, 0 bits of RAM, use MR1, Enhanced mode, and increment the Address register.
 - Segment Control register set to 00C0h. This sets the LANCAM to accept writes to Segment 0 and reads from Segments 0-3.
 - Persistent Source for data reads set as the memory location specified by the Address register.
 - Page Address register to 0h. This is a common register and is used by both the foreground and background registers.
- Read the LANCAM device ID register in order to determine which LANCAM device is used.

Once the software has launched, the user may change the LANCAM speed to suit, if the device that is being used does not match the default settings. The Reject signal may also be re-configured to suit the user's application. The user need not be concerned that some MU9C8358L or MU9C8338A and LANCAM registers were initialized as this is necessary for the Filter to work normally. These would be set this way in any typical application but may be altered by running external software (such as C code) after the CAMViewer is launched. This is done with the warning that the CAMViewer may not work properly if the registers shown are not set correctly. All other registers in the MU9C8358L or MU9C8338A and in the LANCAM are left unaffected and should be initialized by external software.

Note: Due to the fact that initialization is performed when the software is launched, the user should not attempt to transmit any network traffic to the Evaluation board until the software has initialized and you can see the CAMView window.

To read the LANCAM entries, the user should click on the "Refresh" button. This reads the type and number of entries currently selected. Sometimes the number of entries shown may not be as many as the number of entries that were selected to be shown. This occurs in occasions when there are fewer entries of the type selected than the number selected. When the "Refresh" button is pressed, the progress bar at the bottom of the software will flash and the text "Reading LANCAM" is displayed to show that the entries are being read. Sometimes this will flash very quickly.

MENU

The CAMView software has a menu that allows specific settings to be changed. It also allows the user to specify the type and number of entries displayed. A "check" mark is shown to indicate the current setting. The menu items are as follows:

Parallel Port – addr=0x378 or addr=0x278

The user may specify the base address of the Parallel port that the GUI should use.

Location – Hex or Dec

The user may specify whether the LANCAM memory address location number is shown in hexadecimal or decimal format.

Number of Entries

The CAMView software reads the number of entries selected with this menu. The choices are 10, 50, 100, ¼, ½, ¾, and All of the entries in the device.

Content Type

The CAM Viewer can be configured to show only Valid, or Empty locations as determined by the LANCAM Status bits. The user may also choose to show only the entries that have the Permanent bit (bit 15 of Segment 0) set to 1. The remaining choice is to show all entries.

Speed Grade

The user may specify the speed grade of the LANCAM used with the Evaluation Board.

Reject Pin

The user may specify whether the reject pin is asserted HIGH or LOW. This relates to bit 0 of the SSCFG register. Although this setting is not strictly required in order to read LANCAM entries, it needs to be specified because the user must specify bits 3:1 of the same register to set the speed grade.

DISPLAY

The CAMView software displays the contents of the MU9C8358L or MU9C8338A Evaluation board LANCAM database. Each of the entries are shown as follows:

Location

This is the LANCAM address of the entry displayed. This is shown in either hex or decimal format depending on which method is selected.

Seg 3 - Seg 0

These are the four LANCAM entry segments as they are stored in the LANCAM. This is always displayed in hex.

MAC Address

When the MU9C8358L or MU9C8338A automatically adds a MAC address that is extracted from network traffic, it is added to Segments 1, 2, and 3. Entries are also stored in the same manner when the MU9C8358L or MU9C8338A built-in add entry routine (SDO_ADD register) is used. This section of the display shows how the data seen in Seg 3, Seg 2, and Seg 1 is decoded.

Perm, Port ID, and TS

When the MU9C8358L is used as described in the Application Note AN-N24: Using the MU9C8358L Quad 10/100 Mb Ethernet Filter Interface in Switch Applications, Segment 0 is encoded to store a Permanent bit, Port ID, and Time-stamp. The Application Note AN-N38: Single-Port 10/100Mb Users Guide uses the same Segment 0 encoding method for the MU9C8338A. The Perm, Port ID, and TS sections display the relevant decoded bits of segment 0.

Status

This displays the status of each entry's validity bits. The four possible settings are E = Empty, V = Valid, S = Skip, R = RAM. Normally in a typical application, only E and V should be displayed.

The CAMView software also displays the current values of the STCURR and STPURG registers. These are the two counters used for aging (purging or deleting) of older entries. The current selection for the type and number of entries to be displayed is also shown. The value that was written to the SSCFG register is shown.

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