Interoffice Memo

Date: July 11, 1997
To: **Glenn Waehner,**

Tom Dodrill, Walter Bayer, Jim McWilliams,
From: Dave deLisser
**RE:** Multiplexer Keyboard Meeting Summary

The following is a brief summary of yesterdays meeting. Please review this summary and let me know if I should add or correct anything. I am working on the keyboards/multiplexer functionality description (what buttons do what and how).

Multiplexer/Keyboard Communications
We are investigating the possibility of implementing a keyboard/multiplexer communication scheme in which the multiplexer acts as a listen only device. There are two significant advantages of using this type of communication scheme. The first is that it will allow the multiplexer to be used in conjunction with the CM6700, KBD200, KBD300 as well as the KBD400. The second is that it simplifies the software development required and may allow us to utilize some of the existing 6700 software reducing the implementation time.

There are two different Keyboard/Multiplexer configurations:

1) A single KBD400 keyboard can be used to control up to 16 MX4000 Multiplexers.
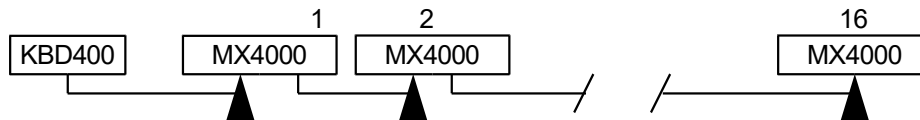
> In this configuration the KBD400 will provide control of all multiplexer functions. It will also provide the additional controls required for Pan/Tilt/Lens and Dome control. Commands are transmitted from the KBD400 to the multiplexers via a single direction RS485 connection. The multiplexers do not send any information back to the KBD400.

2) A CM6700 system with one or more keyboards (KBD200, KBD300) can provide limited control of the Main monitor display of a single MX4000
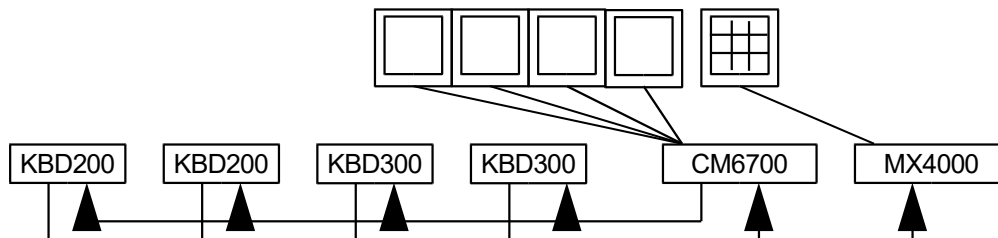
In this configuration all of the keyboards will provide limited control of the multiplexers Main monitor display only. These commands are activated by pressing the shift key and selecting the desired multiplexer function. The MX4000 will listen to all commands but only respond to those associated with multiplexer functions. The MX4000 will not send any information back to the keyboards or the CM6700.

Questions?
- Can the transmit wire on the multiplexer be connected or will we need to leave it disconnected?
- What baud rate do we communicate at? The multiplexer baud rate is not programmable by a user.

Disadvantages of using this communication scheme:

1) This scheme will not allow more then one KBD400 keyboard to control the multiplexers on initial introduction.
2) Since this is a single direction communication scheme there is a possibility that keyboard commands to the multiplexer could be missed due to the lack of an acknowledge back from the multiplexer.

Future Expansion:

The communication scheme must be capable of supporting multiple keyboards controlling multiple multiplexers at a later date. We believe that this can be accomplished with the addition of a inexpensive keyboard server.
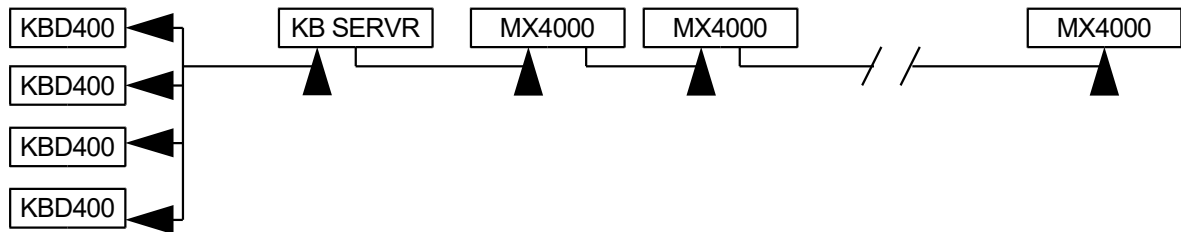
Additional Multiplexer Menu Items:

The multiplexer camera set-up menus will need an additional field to allow the selection of the coaxitron code format. This field will have three options; Coaxitron Code Format "OFF", "STANDARD", and "EXTENDED".

Action Items:

Walter Bayer
      Investigate the possibility of utilizing some of the existing CM6700 code in the multiplexer to handle the keyboard interface and the translation of keyboard commands to coaxitron codes.

Questions?
- How much code space does the 6700 use to accomplish this keyboard/coaxitron translation?(is there enough space in the multiplexer to support it?)
- How difficult would it be to plug this code into the current multiplexer code?
- How significant is the burden on the microprocessor?

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Dave deLisser

Review and clearly define the keyboard(button) commands and the resulting multiplexer functions. This needs to include the KBD200, 300, and 400 commands.

Glenn Waehner

Allocate the personnel to support the implementation of this communication scheme (i.e. Jeff Jacobs for modification of 6700 code as plug in to multiplexer, Walter Bayer for modification of UTC PIC code as plug in to multiplexer, and a software person to work on the KBD400)