

Matrox Meteor-II/Camera Link

Camera Interface Application Note

NED NFC2KD

February 17, 2003

Basics about the camera

Mode of operations as per Matrox Imaging (in parentheses as per camera manufacturer)

Basics about the interface modes

Camera Descriptions

- Effective resolution: 2048 pixels/line × 10-bit @ up to 9K lines/second.
- Camera Link BASE interface (Single tap).
- Internal or external sync.
- External exposure control.
- 20 MHz pixel clock rate.

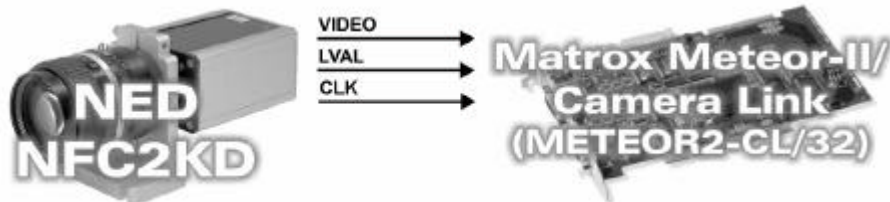
Interface Mode

- Fixed line scan (Free-run, External Edge Triggered)

Camera Interface Briefs

Mode 1: Fixed line rate Free-run mode)

- 2048 pixels/line × 10-bit @ 9k LPS.
- Camera Link BASE interface (Single tap).
- DCF configured for 800 lines per virtual frame.
- Line scan rate is determined by camera setting.
- Matrox Meteor-II/Camera Link receiving LVAL, PIXEL CLOCK and video signal from camera.
- DCF used: [NFC2KHFR.DCF](#) (Required MIL 7.1 and higher)



Mode 2: Fixed line rate (External Edge Triggered)

- 2048 pixels/line × 10-bit.
- Camera Link BASE interface (Single tap).
- DCF configured for 800 lines per virtual frame.
- Line scan rate is determined by the TIMER1 (CC1) signal frequency.
- Matrox Meteor-II/Camera Link sending periodic TIMER1 (CC1) signal to camera to initiate and control exposure time.
- Matrox Meteor-II/Camera Link receiving LVAL, PIXEL CLOCK and video signal from camera.

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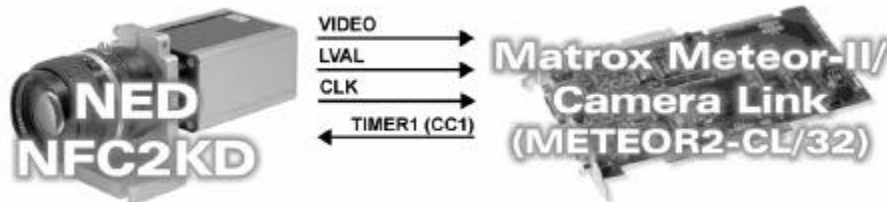
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Basics about the
interface modes

Camera Interface Briefs (cont.)

Mode 2: Fixed line rate (External Edge Triggered)

- DCF used: **NFC2KHLP**. DCF (Required MIL 7.1 and higher)



Specifics about the
interface modes

Camera Interface Details

Mode 1: Fixed line rate (Free-run)

- **Line rate:** Matrox Meteor-II/Camera Link is operated in a slave mode, receiving the video from the camera at **9k** lines per second. Refer to the camera manual for additional information.
- **Exposure time:** Exposure time is fixed and controlled by the camera. Refer to the camera manual for more information.
- **Camera settings:** Refer to the camera manual for additional information.

Mode 2: Fixed line rate (External Edge Triggered)

- **Frame Rate:** The frame rate is determined by the frequency of the periodic TIMER1 (CC1) signal.
- **Exposure time:** The period between the rising edge to rising edge of the TIMER1 (CC1) signal is the exposure time. The exposure time can be modified in the DCF using Matrox Intellicam or with the MIL MdigControl() function. Consult the respective manual for more information. Note that if using an external trigger, the exposure time and image intensity depends on the external trigger frequency (i.e., speed of the moving object).
- **Camera settings:** The exposure mode must be set to **External Controlled** using the camera manufacturer's Camera Link utility (NCCTRL.EXE). Refer to the camera manual for additional information.

Cabling details for the
interface modes

Cabling Requirements

Mode 1: Fixed line rate (Free-run)

- **Cable and Connection:** Standard Camera Link cable.

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*Cabling details for the
interface modes*

Cabling Requirements (cont.)

Mode 2: Fixed line rate (External Edge Triggered)

- **Cable and Connection:** Standard Camera Link.
- **External trigger:** External trigger should be connected to the OPTO TRIG input of the 9-pin connector (pins 7 and 2) on the Expanded I/O adapter bracket.

EXPANDED I/O BRACKET (9-pin connector)

External Trigger Source

OPTOTRIG +	07	←	SIGNAL	--
OPTOTRIG -	02	←	GROUND	--

The DCF(s) mentioned in this application note can be found on our FTP site ([ftp.matrox.com/pub/imaging/](ftp://ftp.matrox.com/pub/imaging/)). The information furnished by Matrox Electronics System, Ltd. is believed to be accurate and reliable. Please verify all interface connections with camera documentation or manual. Contact your local sales representative or Matrox Sales office or Matrox Imaging Applications at 514-822-6061 for assistance.

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MET2-CID-133

