

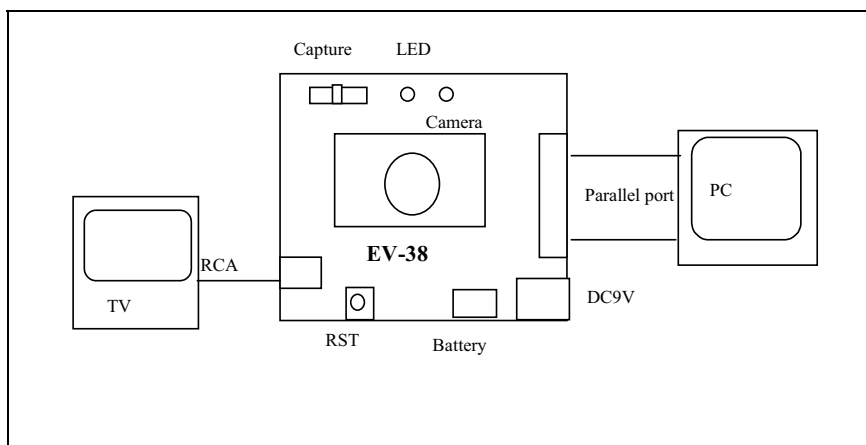


EVA-Boards Manual

Introduction

The Cev38 camera evaluation board (EVB) allows users to demonstrate the image quality from the sensors of OV7610, OV7620, OV6620, OV7110, OV7120 and OV6120. It provides parallel interface for PC control. Through I2C bus, the settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose. In addition, the EVB can be battery operated and act as a digital still camera.

Block diagram



Content of kit

- Camera module with lens
- Camera Evaluation Board, model EV38 Rev A
- Parallel port cable
- 2-pin connector for battery
- RCA to RCA cable
- Disk containing evaluation software and operation manual
 - a. Cev38.exe, C3188.exe, M3188.exe, C3188A.exe, M3188A.exe, C3088.exe and M3088.exe
 - b. Monitor.exe
 - c. Bmphead24
 - d. Operation manual

System requirement

- 7.5V ~ 12V DC power supply, 200mA regulate, 9V is recommended
- video monitor, EIA for C3188, C3188A, M3188 and M3188A, or CCIR for C3088 and M3088
- PC with Pentium processor running Windows95/98 with ECP compliant parallel port

Hardware

Designation	Purpose	Connection requirement
J1	Control interface	Connect to PC Parallel Port
J3	Power down mode	Use short bar to enable power down mode
J4	External Clock input	Connect to external clock source
J5	Battery power connector	Connect to battery 6V, 1.5V x 4pcs
J6	Video Out	Connect to Composite Video input of TV/Monitor
J7	DC power connector	Connect to DC 9V adapter, core positive.
SW1	Reset button	To reset the system
SW3	Slide switch	To capture the image
RED LED	Capture Mode indicator	Light to indicate Capture mode
Green LED	Upload Mode indicator	Flash during uploading data to PC

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3



EVA-Boards

Manual

Software Installation

1. Create a directory in your hard disk. eg c:\Camera
2. Copy all the files in disk to the hard disk under directory c:\camera
3. Check your PC system setup if the parallel port is set at ECP mode and active.
4. Cev38.exe is the main program for the EVB, monitor.exe is use for display image purpose. The C3188.exe, M3188.exe, C3188A.exe, M3188A.exe, C3088.exe and M3088.exe are for the control of different camera modules.
5. Click Cev38.exe to start program.

Connecting EVB

1. Be sure the camera module is seated properly on the EVB.
2. Connect the power supply plug to J7, make sure the center is +ve. Can use AC/DC adapter or other regulated power source, range 7.5V-12V. You can switch the SW3 to either side and Red LED will be ON or OFF. That means the power is correct connected.
3. If battery is used, 4pcs of 1.5V AA size or bigger is recommended. Use the enclosed connector wire pairs for this purpose. Note the polarity of battery, red wire for +ve and black for -ve.
4. Make sure the Cev38.exe is running on PC, plug in the parallel port cable, one end to PC and the other end to EVB. Such case your PC parallel port will be initialized before plug in to EVB.
5. Connect RCA cable to TV/monitor, you can see the monochrome image on the screen. If under 50Hz lighting, you may find slight flicking of the picture. That is normal due to different TV system. The focus of the image can be fine tuned by turning in and out of the lens.
6. Now, you are ready to set up the camera and upload pictures.

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3

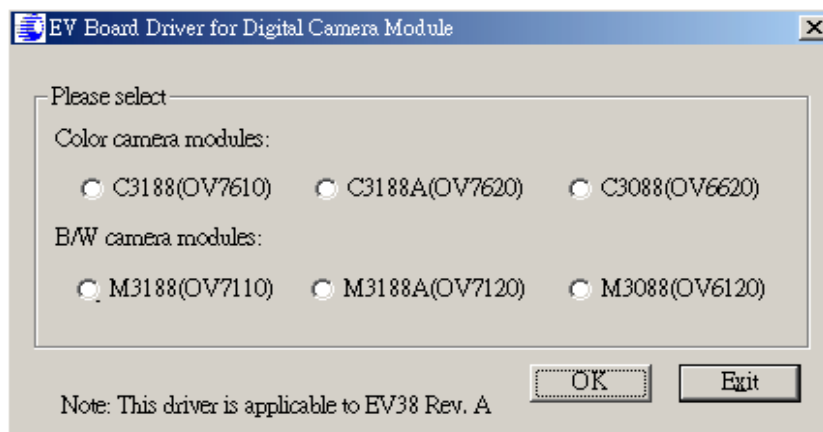


EVA-Boards Manual

Operating EVB

1. Click CEV38.exe
2. Select the corresponding camera module.
3. Click OK to confirm
4. A new dialog will appear. For details in the Camera Control Panel,
Goto **C3188 Control Panel Manual** for C3188 Panel.
Goto **C3188A Control Panel Manual** for C3188A Panel.
Goto **C3088 Control Panel Manual** for C3088 Panel.
Goto **M3188 Control Panel Manual** for M3188 Panel
Goto **M3188A Control Panel Manual** for M3188A Panel
Goto **M3088 Control Panel Manual** for M3088 Panel

B. CEV38 Panel



C. Operation

1. Please Select the camera module by clicking the button.
 - clicking C3188(OV7610) will activate the **C3188 Control Panel**
 - clicking C3188A(OV7620) will activate the **C3188A Control Panel**
 - clicking C3088(OV6620) will activate the **C3088 Control Panel**
 - clicking M3188(OV7110) will activate the **M3188 Control Panel**
 - clicking M3188A(OV7120) will activate the **M3188A Control Panel**
 - clicking M3088(OV6120) will activate the **M3088 Control Panel**
2. OK: Click OK to activate the Camera Control Panel Dialog.
3. Exit: To exit the program.

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3



EVA-Boards

Manual

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3

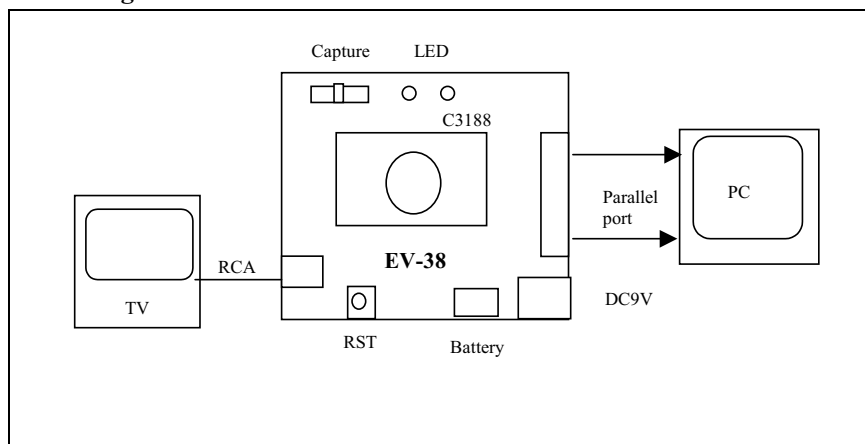
C3188 Control Panel Manual

The C3188 color camera Control Panel allows users to demonstrate the image quality from the sensor of OV7610. It provides parallel interface for PC control. Through I2C bus, the settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose. In addition, the EVB can be battery operated and act as a digital still camera.

Features

- CIF format of RGB raw data, or YUV 4:2:2 8bit Format
- Progressive
- Window setting
- Mirror function
- Gain, contrast, sharpness, brightness, color saturation setting control
- Internal register control
- Still picture capture

Block diagram



Operating EVB

1. Red LED ON means the camera is ready for taking picture. Switch SW3 to take picture and Red LED will be off and enter upload mode.
2. When the **Control Panel for OV7610** is active, an operation notice will appear. You must ensure that all connection is proper.
3. To have the color image, the camera must be initialized by the **Control Panel for OV7610** first. Select RGB or YUV and click the Set Register button on the control panel before picture taking.
4. At upload mode, click Upload button on the control panel, the picture will be displayed on the PC monitor. You can only capture and upload one picture at a time. The picture can be saved as *.bmp format to the hard disk.
5. Most of the features of the camera can be set through the control panel. Every time the register is set, need to click "Set Register" and make the setting effective.
6. Click the Reset button can clear all settings and load the default settings.

Using the Control Panel for OV7610

A. Function of Button

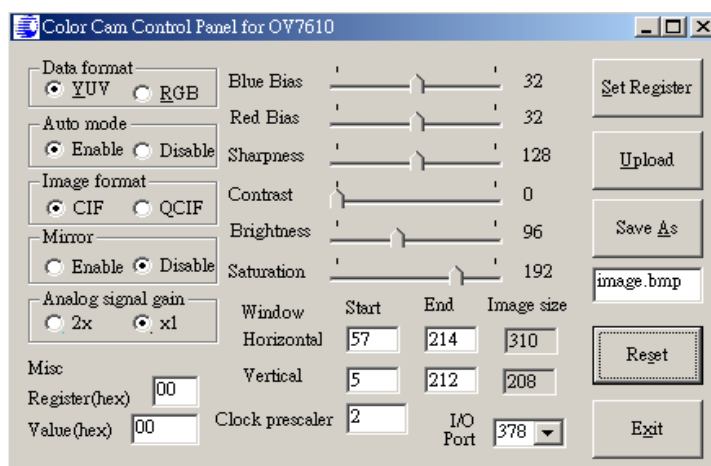
Name	Function
Set Register	After selecting the desired features, click this to set register of the camera
Upload	After picture is captured, click this to upload data from camera to PC and display
Save As	To save current image to hard disk, input the file name before click the button
Exit	Exit the program



EVA-Boards

Manual

B. Control Panel



C. Operation

1. Data format: Select YUV 4:2:2 or RGB raw data, both of 8 bit data stream. In fact, the image sensor OV7610 can provide various data format, but due to the restriction of memory on board, only 8-bit data can be captured.
2. Scanning: Progressive only. In fact OV7610 can provide interlace scanning.
3. Image size: Select CIF or QCIF. The maximum size of OV7610 is VGA but due to the limited memory size on board, only CIF or smaller image can be selected. In YUV, CIF is 310 x 208. In RGB, the maximum size can be 416 x 312.
4. Mirror: perform mirror function.
5. Analog Gain: This will enable AGC control by 2 times.
6. Window: The window size can be set from 4x4 to 416x312 in RGB and 310 x 208 in YUV. Horizontal Start and End should be even or odd figures at the same time. The inputted value should be decimal. Equation for Windowing:
 Width of a Bitmap file = ((Horizontal End – Horizontal Start) – 2) x 4
 Height of a Bitmap file = ((Vertical End – Vertical Start) + 1) x 2
7. Blue Bias : Blue channel bias value. This is for Blue component of Auto White Balance.
8. Red Bias : Red channel bias value. This is for Red component of Auto White Balance.
9. Sharpness : 00 for highest, FF for lowest.
10. Contrast : Y signal contrast adjustment
11. Brightness : Y signal brightness adjustment
12. Saturation : Color saturation adjustment
13. Clock Prescaler : It is to slow the pixel clock rate
14. Misc: It can access to all Camera Registers by inputting a register sub-address and value in Hex form. Register setting, refer to data sheet for detail control. Only one register can be set at a time and will not update on the Main Program.
15. I/O Port: the printer port address of the computer.
16. Reset: reset the software and camera to default setting.
17. Exit: Exit the program

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3



EVA-Boards

Manual

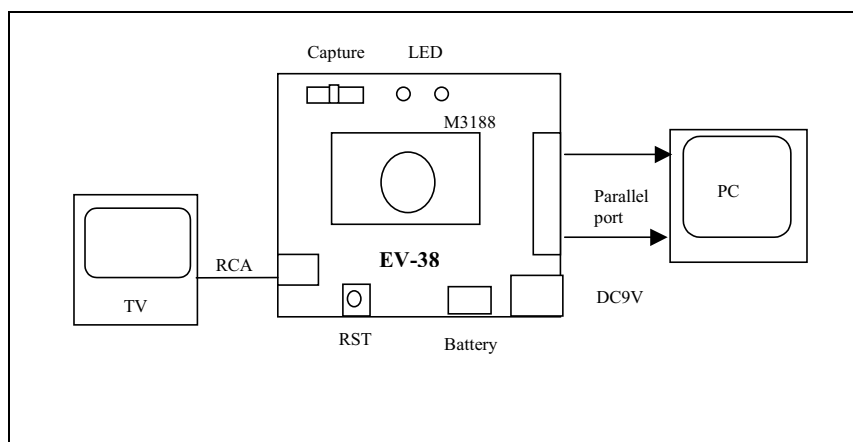
M3188 Control Panel Manual

The M3188 camera Control Panel allows users to demonstrate the image quality from the sensor of OV7110. It provides parallel interface for PC control. Through I2C bus, settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose. In addition, the EVB can be battery operated and act as a digital still camera.

Features

- 8-bit grey scale format
- image size:418 x 312, CIF, QCIF
- Progressive
- Window setting
- Mirror function
- Gain, contrast, sharpness, brightness, exposure setting control
- Internal register control
- Still picture capture

Block diagram



Operating EVB

1. Red LED ON means the camera is ready for taking picture. Switch SW3 to take picture and Red LED will be off and enter upload mode.
2. When the **Control Panel for OV7110** is active, an operation notice will appear. You must ensure that all connection is proper.
3. To have the image, the camera must be initialized by **Control Panel for OV7110** first. Click the Set Register button on the control panel before picture taking.
4. At upload mode, click Upload button on the control panel, the picture will be displayed on the PC monitor. You can only capture and upload one picture at a time. The picture can be saved as *.bmp format to the hard disk.
5. Most of the features of the camera can be set through the control panel. Every time the register is set, need to click "Set Register" and make the setting effective.
6. Click the Default Setting button can clear all settings and load the default settings.

Using the Control Panel for OV7110

A. Function of Button

Name	Function
Set Register	After selecting the desired features, click this to set register of the camera
Upload	After picture is captured, click this to upload data from camera to PC and display
Save As	To save current image to hard disk, input the file name before click the button

OEM-Information - please note:

CEV38	= ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	= ITM-C-B1P
C3088 (OV6620)	= ITM-C-B2
M3188 (OV7110)	= ITM-M-B1
M3188A (OV7120)	= ITM-M-B2
M3088 (OV6120)	= ITM-M-B3

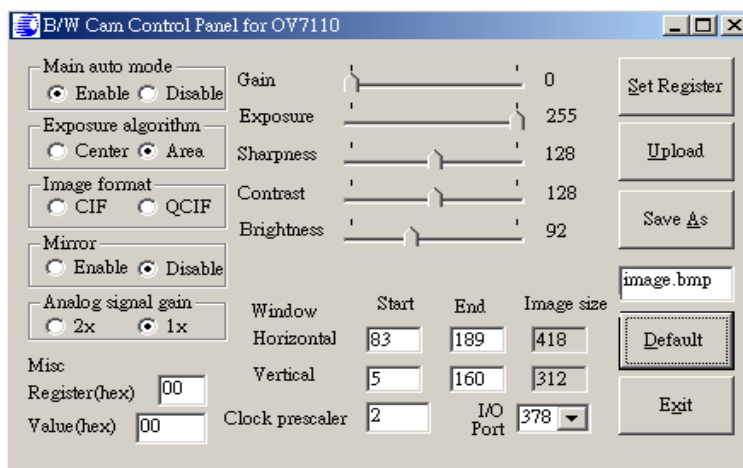


EVA-Boards

Manual

Exit Exit the program

B. Control Panel



C. Operation

1. Data format: 8-bit grey scale data.
2. Scanning: Progressive only. In fact OV7110 can provide interlace scanning.
3. Image size: Select image size, default setting is 418 x 312, option CIF or QCIF. The maximum size of OV7110 is VGA but due to the limited memory size on board, one can only set the largest image size of 128K pixels.
4. Main auto mode: When it is disable, Gain and Exposure can be set by manual. Otherwise, Gain and Exposure are set by internal auto control of the camera.
5. Mirror: perform mirror function.
6. Analog Gain: This will enable AGC control by 2 times.
7. Window: The window size can be set from 4x2 to 418x312. The inputted value should be decimal.
Equation for Windowing:
Width of a Bitmap file = ((Horizontal End – Horizontal Start) – 2) x 4 + 2
Height of a Bitmap file = ((Vertical End – Vertical Start) + 1) x 2
8. Exposure algorithm : To select center exposure algorithm or area exposure algorithm
9. Exposure: Manual exposure setting. This is only effective when auto mode is disable.
10. Gain: To control the gain of camera by manual. This is only effective when auto mode is disable.
11. Sharpness : 00 for highest, FF for lowest
12. Contrast : contrast adjustment
13. Brightness : brightness adjustment
14. Clock Prescaler : It is to control the pixel clock rate
15. Misc: It can access to all Camera Registers by inputting a register sub-address and value in Hex form. Register setting, refer to data sheet for detail control. Only one register can be set at a time and will not update on the Main Program.
16. I/O Port: the printer port address of the computer.
17. Save As : The captured image can be save in hard disk in bit map (*.bmp) format. However, the raw image file is also provided in the same directory.
18. Default: reset software and camera to default setting.
19. Exit: Exit the program

End

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3



EVA-Boards

Manual

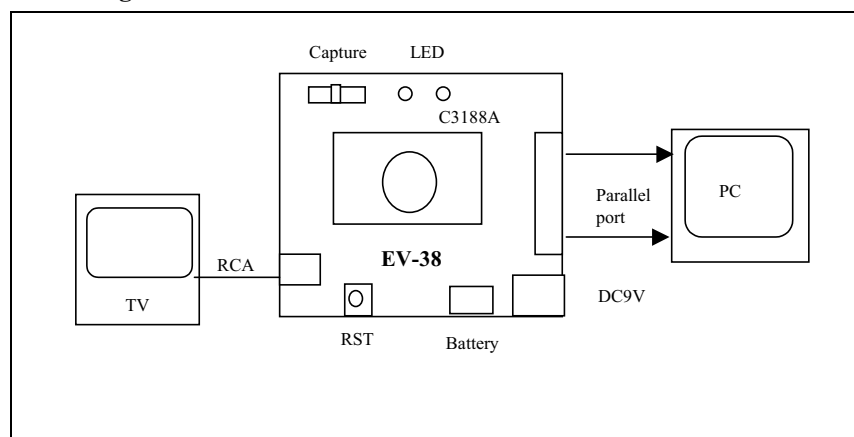
C3188A Control Panel Manual

The C3188A color camera Control Panel allows users to demonstrate the image quality from the sensor of OV7620. It provides parallel interface for PC control. Through I2C bus, the settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose.

Features

- CIF format of RGB raw data, or YUV 4:2:2 8bit Format
- Progressive
- Window setting
- Mirror function
- Gain, contrast, sharpness, brightness, color saturation setting control
- Internal register control
- Still picture capture

Block diagram



Operating EVB

1. Red LED ON means the camera is ready for taking picture. Switch SW3 to take picture and Red LED will be off and enter upload mode.
2. When the **Control Panel for OV7620** is active, an operation notice will appear. You must ensure that all connection is proper.
3. To have the color image, the camera must be initialized by the **Control Panel for OV7620** first. Select RGB or YUV and click the Set Register button on the control panel before picture taking.
4. At upload mode, click Upload button on the control panel, the picture will be displayed on the PC monitor. You can only capture and upload one picture at a time. The picture can be saved as *.bmp format to the hard disk.
5. Most of the features of the camera can be set through the control panel. Every time the register is set, need to click "Set Register" and make the setting effective.
6. Click the Reset button can clear all settings and load the default settings.

Using the Control Panel for OV7620

A. Function of Button

Name	Function
Set Register	After selecting the desired features, click this to set register of the camera
Upload	After picture is captured, click this to upload data from camera to PC and display
Save As	To save current image to hard disk, input the file name before click the button
Exit	Exit the program

OEM-Information - please note:

CEV38	= ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	= ITM-C-B1P
C3088 (OV6620)	= ITM-C-B2
M3188 (OV7110)	= ITM-M-B1
M3188A (OV7120)	= ITM-M-B2
M3088 (OV6120)	= ITM-M-B3

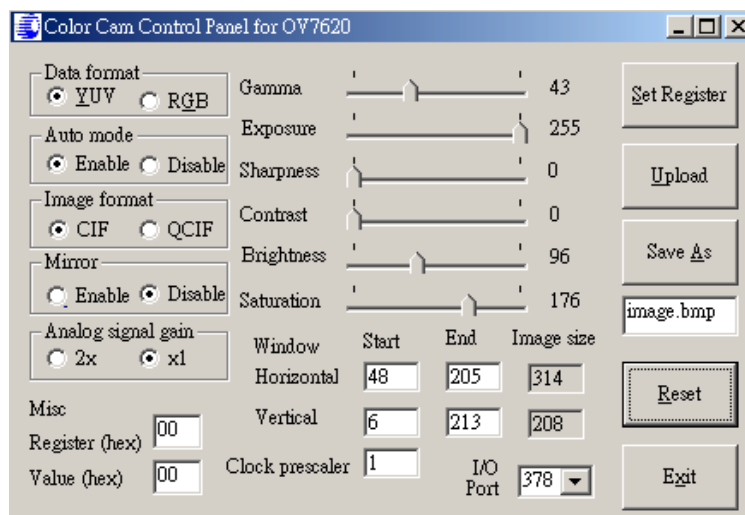


EVA-Boards

Manual

OEM-Information - please note:

CEV38	= ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	= ITM-C-B1P
C3088 (OV6620)	= ITM-C-B2
M3188 (OV7110)	= ITM-M-B1
M3188A (OV7120)	= ITM-M-B2
M3088 (OV6120)	= ITM-M-B3

B. Control Panel

C. Operation

1. Data format: Select YUV 4:2:2 or RGB raw data, both of 8 bit data stream. In fact, the image sensor OV7620 can provide various data format, but due to the restriction of memory on board, only 8 bit data can be captured.
2. Scanning: Progressive only. In fact OV7620 can provide interlace scanning.
3. Image size: Select CIF or QCIF. The maximum size of OV7620 is VGA but due to the limited memory size on board, only CIF or smaller image can be selected. In YUV, CIF is 314 x 208. In RGB, CIF is 420 x 312.
4. Mirror: perform mirror function.
5. Analog Gain: This will enable AGC control by 2 times.
6. Window: The window size can be set from 4 x 4 to 420 x 312 in RGB and 314 x 208 in YUV. Horizontal Start and End should be even or odd figures at the same time. The inputted value should be decimal. Equation for Windowing:
 Width of a Bitmap file = (Horizontal End – Horizontal Start) x 4
 Height of a Bitmap file = ((Vertical End – Vertical Start) + 1) x 2
7. Blue Bias : Blue channel bias value. This is for Blue component of Auto White Balance.
8. Red Bias : Red channel bias value. This is for Red component of Auto White Balance.
9. Sharpness : 00 for highest, FF for lowest
10. Contrast : Y signal contrast adjustment
11. Brightness : Y signal brightness adjustment
12. Saturation : Color saturation adjustment
13. Clock Prescaler : It is to slow the pixel clock rate
14. Misc: It can access to all Camera Registers by inputting a register sub-address and value in Hex form. Register setting, refer to data sheet for detail control. Only one register can be set at a time and will not update on the Main Program.
15. I/O Port: the printer port address of the computer.
16. Reset: reset the software and camera to default setting.
17. Exit: Exit the program



EVA-Boards

Manual

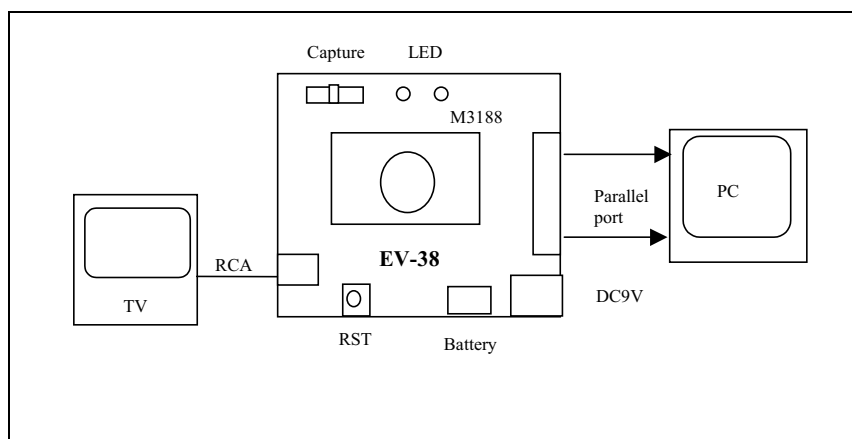
M3188A Control Panel Manual

The M3188A camera Control Panel allows users to demonstrate the image quality from the sensor of OV7120. It provides parallel interface for PC control. Through I2C bus, settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose.

Features

- 8-bit grey scale format
- image size:420 x 312, CIF, QCIF
- Progressive
- Window setting
- Mirror function
- Gain, contrast, sharpness, brightness, exposure setting control
- Internal register control
- Still picture capture

Block diagram



Operating EVB

1. Red LED ON means the camera is ready for taking picture. Switch SW3 to take picture and Red LED will be off and enter upload mode.
2. When the **Control Panel for OV7120** is active, an operation notice will appear. You must ensure that all connection is proper.
3. To have the image, the camera must be initialized by the **Control Panel for OV7120** first. Click the Set Register button on the control panel before picture taking.
4. At upload mode, click Upload button on the control panel, the picture will be displayed on the PC monitor. You can only capture and upload one picture at a time. The picture can be saved as *.bmp format to the hard disk.
5. Most of the features of the camera can be set through the control panel. Every time the register is set, need to click "Set Register" and make the setting effective.
6. Click the Default Setting button can clear all settings and load the default settings.

Using the Control Panel for OV7120

A. Function of Button

Name	Function
Set Register	After selecting the desired features, click this to set register of the camera
Upload	After picture is captured, click this to upload data from camera to PC and display
Save As	To save current image to hard disk, input the file name before click the button
Exit	Exit the program

OEM-Information - please note:

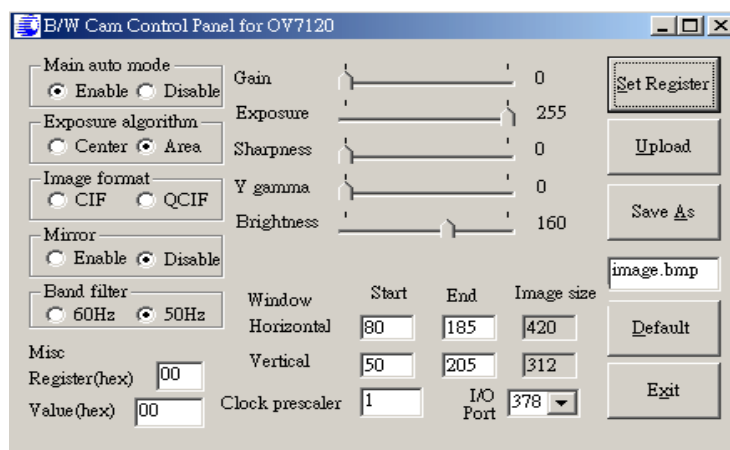
CEV38	= ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	= ITM-C-B1P
C3088 (OV6620)	= ITM-C-B2
M3188 (OV7110)	= ITM-M-B1
M3188A (OV7120)	= ITM-M-B2
M3088 (OV6120)	= ITM-M-B3



EVA-Boards

Manual

B. Control Panel



C. Operation

1. Data format: 8-bit grey scale data.
2. Scanning: Progressive only. In fact OV7120 can provide interlace scanning.
3. Image size: Select image size, default setting is 420 x 312, option CIF or QCIF. The maximum size of OV7120 is VGA but due to the limited memory size on board, one can only set the largest image size of 128K pixels.
4. Main auto mode: When it is disable, Gain and Exposure can be set by manual. Otherwise, Gain and Exposure are set by internal auto control of the camera.
5. Mirror: perform mirror function.
6. Window: The window size can be set from 4x2 to 420x312. The inputted value should be decimal.
Equation for Windowing:
Width of a Bitmap file = (Horizontal End – Horizontal Start) x 4
Height of a Bitmap file = ((Vertical End – Vertical Start) + 1) x 2
7. Exposure algorithm : To select center exposure algorithm or area exposure algorithm
8. Exposure: Manual exposure setting. This is only effective when auto mode is disable.
9. Gain: To control the gain of camera by manual. This is only effective when auto mode is disable.
10. Sharpness : 00 for highest, FF for lowest
11. Y gamma: adjust the gamma value
12. Brightness : brightness adjustment
13. Band filter: to prevent some dark band on image
14. Clock Prescaler : It is to control the pixel clock rate
15. Misc: It can access to all Camera Registers by inputting a register sub-address and value in Hex form. Register setting, refer to data sheet for detail control. Only one register can be set at a time and will not update on the Main Program.
16. I/O Port: the printer port address of the computer.
17. Save As : The captured image can be save in hard disk in bit map (*.bmp) format. However, the raw image file is also provided in the same directory.
18. Default: reset the software and camera to default setting.
19. Exit: Exit the program

End

OEM-Information - please note:

CEV38	=	ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	=	ITM-C-B1P
C3088 (OV6620)	=	ITM-C-B2
M3188 (OV7110)	=	ITM-M-B1
M3188A (OV7120)	=	ITM-M-B2
M3088 (OV6120)	=	ITM-M-B3



EVA-Boards

Manual

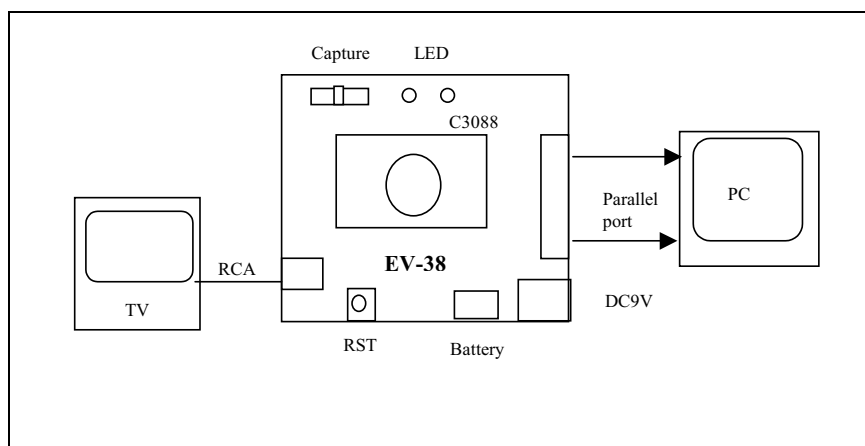
C3088 Control Panel Manual

The C3088 color camera Control Panel allows user to demonstrate the image quality from the sensor of OV6620. It provides parallel interface for PC control. Through I2C bus, the settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose. In addition, the EVB can be battery operated and act as a digital still camera.

Features

- CIF format of RGB raw data, or YUV 4:2:2 8-bit Format
- Window setting
- Progressive scanning
- Mirror function
- Gain, contrast, sharpness, brightness, color saturation setting control
- Internal register control
- Still picture capture

Block diagram



Operating EVB

1. Red LED ON means the camera is ready for taking picture. Switch SW3 to take picture and Red LED will be off and enter upload mode.
2. When the **Control Panel for OV6620** is active, an operation notice will appear. You must ensure that all connection is proper.
3. To have the color image, the camera must be initialized by the **Control Panel for OV6620** first. Select RGB or YUV and click the Set Register button on the control panel before picture taking.
4. At upload mode, click Upload button on the control panel, the picture will be displayed on the PC monitor. You can only capture and upload one picture at a time. The picture can be saved as *.bmp format to the hard disk.
5. Most of the features of the camera can be set through the control panel. Every time the register is set, need to click "Set Register" and make the setting effective.
6. Click the Reset button can clear all settings and load the default settings.

Using the Control Panel for OV6620

A. Function of Button

Name	Function
Set Register	After selecting the desired features, click this to set register of the camera
Upload	After picture is captured, click this to upload data from camera to PC and display
Save As	To save current image to hard disk, input the file name before click the button
Exit	Exit the program

OEM-Information - please note:

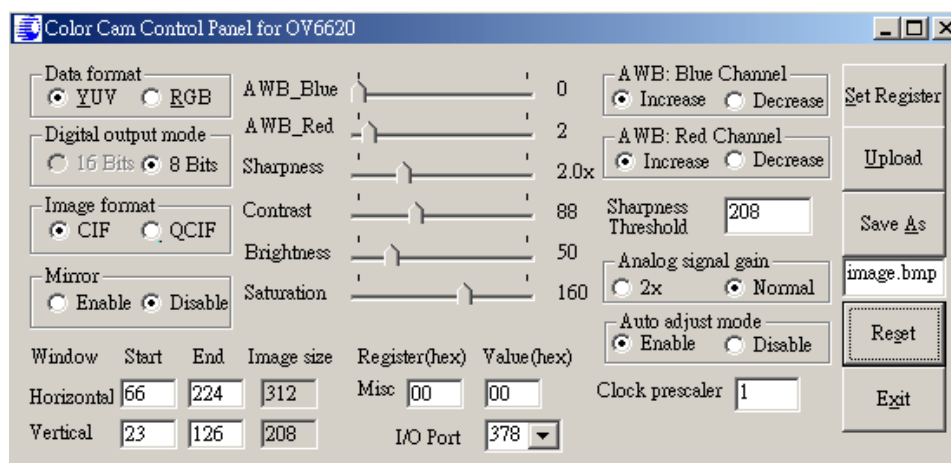
CEV38	= ITM-EVA-B1 bzw. -B2
C3188A (OV7620)	= ITM-C-B1P
C3088 (OV6620)	= ITM-C-B2
M3188 (OV7110)	= ITM-M-B1
M3188A (OV7120)	= ITM-M-B2
M3088 (OV6120)	= ITM-M-B3



EVA-Boards

Manual

B. Control Panel



C. Operation

1. Data format : Select YUV 4:2:2 or RGB raw data, both of 8 bit data stream. In fact, the image sensor OV6620 can provide various data format, but due to the restriction of memory on board, only 8 bit data can be captured.
2. Scanning: Progressive only.
3. Image size : Select CIF or QCIF. The maximum size of OV6620 is CIF but due to the limited memory size on board, only CIF or smaller image can be selected. In YUV, CIF is 312 x 208. In RGB, CIF is 352 x 288.
4. Mirror : perform mirror function.
5. Analog Gain : This will enable AGC control by 2 times.
6. Window: The window size can be set from 4x4 to 352 x 288 in RGB and 312 x 208 in YUV. Horizontal Start and End should be even or odd figures at the same time. The input value should be decimal. Equation for Windowing:
 Width of a Bitmap file = ((Horizontal End – Horizontal Start) – 2) x 2
 Height of a Bitmap file = ((Vertical End – Vertical Start) + 1) x 2
7. Blue Bias : Blue channel bias value. This is for Blue component of Auto White Balance.
8. Red Bias : Red channel bias value. This is for Red component of Auto White Balance.
9. Sharpness : 00 for highest, FF for lowest
10. Contrast : Y signal contrast adjustment
11. Brightness : Y signal brightness adjustment
12. Saturation : Color saturation adjustment
13. Clock Prescaler : It is used to slow the pixel clock rate
14. Misc: It can access to all Camera Registers by inputting a register sub-address and value in Hex form. Register setting, refer to data sheet for detail control. Only one register can be set at a time and will not update on the Main Program.
15. I/O Port: the printer port address of the computer.
16. Reset: reset the software and camera to default setting.
17. Exit: Exit the program

OEM-Information - please note:

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EVA-Boards

Manual

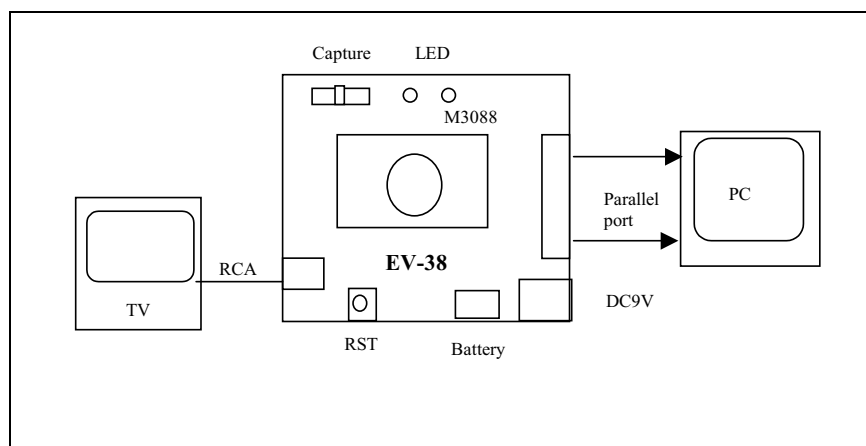
M3088 Control Panel Manual

The M3088 b/w camera Control Panel allows users to demonstrate the image quality from the sensor of OV6120. It provides parallel interface for PC control. Through I2C bus, the settings of camera can be controlled by PC. Besides, it provides monochrome video signal for monitoring purpose.

Features

- CIF 8-bit grey scale format
- Window setting
- Progressive scanning
- Mirror function
- Gain, contrast, sharpness, brightness, exposure setting control
- Internal register control
- Still picture capture

Block diagram



Operating EVB

1. Red LED ON means the camera is ready for taking picture. Switch SW3 to take picture and Red LED will be off and enter upload mode.
2. When the **Control Panel for OV6120** is active, an operation notice will appear. You must ensure that all connection is proper.
3. To have an image, the camera must be initialized by the **Control Panel for OV6120** first. Click the "OK" of the Operation notice dialogue before picture taking.
4. At upload mode, click Upload button on the control panel, the picture will be displayed on the PC monitor. You can only capture and upload one picture at a time. The picture can be saved as *.bmp format to the hard disk.
5. Most of the features of the camera can be set through the control panel. Every time the register is set, need to click "Set Register" and make the setting effective.
6. Click the Reset button can clear all settings and load the default settings.

Using the Control Panel for OV6120

A. Function of Button

Name	Function
Set Register	After selecting the desired features, click this to set register of the camera
Upload	After picture is captured, click this to upload data from camera to PC and display
Save As	To save current image to hard disk, input the file name before click the button
Exit	Exit the program

OEM-Information - please note:

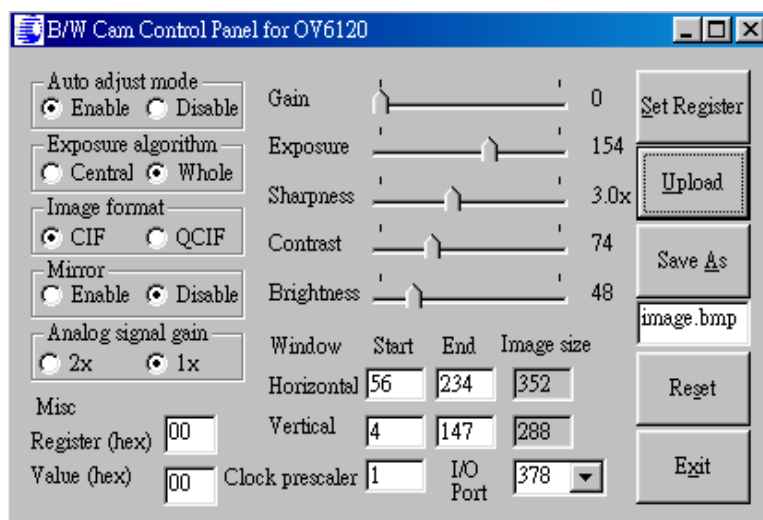
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EVA-Boards

Manual

B. Control Panel



C. Operation

1. Auto adjust mode: When it is disable, Gain and Exposure can be set by manual. Otherwise, Gain and Exposure are set by internal auto control of the camera.
2. Scanning: Progressive only.
3. Image size : Select CIF or QCIF. The maximum size of OV6120 is CIF.
4. Mirror : perform mirror function.
5. Analog Gain : This will enable AGC control by 2 times.
6. Window: The window size can be set from 4x4 to 352x288. Horizontal Start and End should be even or odd figures at the same time. The input value should be decimal. Equation for Windowing:

$$\text{Width of a Bitmap file} = ((\text{Horizontal End} - \text{Horizontal Start}) - 2) \times 2$$

$$\text{Height of a Bitmap file} = ((\text{Vertical End} - \text{Vertical Start}) + 1) \times 1$$
7. Exposure algorithm : To select center exposure algorithm or area exposure algorithm
8. Exposure: Manual exposure setting. This is only effective when auto mode is disable.
9. Sharpness : 00 for highest, FF for lowest
10. Contrast : Y signal contrast adjustment
11. Brightness : Y signal brightness adjustment
12. Clock Prescaler : It is used to slow the pixel clock rate
13. Misc: It can access to all Camera Registers by inputting a register sub-address and value in HEX form. Register setting, refer to data sheet for detail control. Only one register can be set at a time and will not update on the Main Program.
14. I/O Port: the printer port address of the computer.
15. Reset: reset the software and camera to default setting.
16. Exit: Exit the program

OEM-Information - please note:

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EVA-Boards

Manual

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OEM-Information - please note:

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