

MiCAM01 Macro Program Code

1. The definition of a variable

<i>\$var</i>	Character variable
<i>var</i>	Numerical variable

2. The priority of operation

Priority	Operator
1	()
2	!, ++, --, -, *
3	*, /, %
4	+, -
5	<, <=, >, >=
6	==, !=
7	=

3. Control

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while(...){...}
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if(...){...}eles if(...){...}eles{...}
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# The rest becomes a comment.
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4. Function

	Function	Argument	Return value	Explanation
Configuration	ConfigPageModel(<i>arg1</i>)	<i>arg1</i> : page model 0: "5456frm/pg" 1: "2728frm/pg" 2: "1364frm/pg" 3: "682frm/pg" 4: "341frm/pg"	None: when page model, which cannot be specified, is specified, Macro interpreter will abort.	Frame number per data, 0-4
	ConfigShuterdly(<i>arg1</i>)	<i>arg1</i> : Shutter delay (msec)	None	Shutter delay (msec.)
	ConfigVsub_H(<i>arg1</i>)	<i>arg1</i> : VSUB value (High-resolution type CCD)	None	VSUB at High-resolution mode
	ConfigVsub_L(<i>arg1</i>)	<i>arg1</i> : VSUB value (Low-resolution type CCD)	None	VSUB at Low-resolution mode
Acquisition	AqsSetupSampling(<i>arg1</i>)	<i>arg1</i> : Sampling time or frame time; 75, 100, 120, 150, 200, 300, 400, 500 or 1,000 (msec) can be set	None	Sampling time, frame time or exposure time
	AqsSetupTrigger(<i>arg1</i>)	<i>arg1</i> : Trigger mode 0: Internal trigger 1: External trigger 2: Pre 25% 3: Pre 50% 4: Pre 75%	None	Trigger mode, 0-4
	AqsSetupRepint(<i>arg1</i>)	<i>arg1</i> : Interval time (sec)	None	Interval time between each acquisitions

Acquisition	AqsSetupPageMode(<i>arg1</i>)	<i>arg1</i> : Acquisition mode 0: Single 1: Multi 2: Fast Multi 3: 2 Average 4: 4 Average 5: 8 Average 6: 16 Average	None	Acquisition mode, 0-6
	AqsSetupDefGain(<i>arg1</i>)	<i>arg1</i> : Default Gain value	None	Default gain value, Default setting is 64
	AqsSetupDGOut1Delay(<i>arg1</i>)	<i>arg1</i> : Delay time of digital output 1 (msec)	None	Delay time of digital output 1
	AqsSetupDGOut1Dura(<i>arg1</i>)	<i>arg1</i> : Duration time of digital output 1 (msec)	None	Duration time of digital output 1
	AqsSetupDGOut2Delay(<i>arg1</i>)	<i>arg1</i> : Delay time of digital output 2 (msec)	None	Delay time of digital output 2
	AqsSetupDGOut2Dura(<i>arg1</i>)	<i>arg1</i> : Duration time of digital output 2 (msec)	None	Duration time of digital output 2
	AqsSetupShowMovie(<i>arg1</i>)	<i>arg1</i> : Movie after acquisition 0: show movie, 1: no movie	None	Movie after acquisition
	AqsSetupScale(<i>arg1</i>)	<i>arg1</i> : Scale value; This value does not influence to acquisition.	None	Scale value of Image: magnification of image
	AqsStart(<i>arg1</i>)	<i>arg1</i> : Memory bank number for acquired data	None	Start of Acquisition. Acquired data will be stored at memory bank (<i>arg1</i>).

Acquisition	AqsEnd(<i>arg1</i> , <i>arg2</i>)	<i>arg1</i> : Memory bank number for acquired data <i>arg2</i> : File name of acquired data. 0 or NULL leads default name "yymmddnnnA.dml".	None	End of Acquisition. Acquired data will be stored at memory bank # <i>arg1</i> , and named as <i>arg2</i> . "yymmddnnnA.dml" is default, yy: year, mm: month, dd: date, nnn: serial number.
	AqsAbort(<i>arg1</i>)	<i>arg1</i> : Memory bank number for acquired data	None	Abortion of Acquisition running on memory bank # <i>arg1</i> . This function is rarely needed on usual process.
Data	DataSave(<i>arg1</i> , <i>arg2</i> , <i>arg3</i>)	<i>arg1</i> : Memory bank number for Acquisition data storage <i>arg2</i> : File name of acquired data. 0 or NULL leads default name "yymmddnnnA.dml" <i>arg3</i> : Comment	None	Abortion of Acquisition running on memory bank # <i>arg1</i> .
	DataLoad(<i>arg1</i> , <i>arg2</i>)	<i>arg1</i> : Memory bank number for acquired result	None	Abortion of Acquisition running on memory bank # <i>arg1</i> .
	DataDir(<i>arg1</i>)	<i>arg1</i> : Directory for data storage and loading		Setting of directory for data saving and/or loading
Process	Process(<i>arg1</i> , <i>arg2</i>)	<i>arg1</i> : Process 0: Spatial Filter PX2 1: Temporal Frame 2FRM <i>arg2</i> : Memory bank number to be processed	None	Process of one data on a memory bank

	Process(<i>arg1</i> , <i>arg2</i> , <i>arg3</i>)	<i>arg1</i> : Process 0: Add $A = A + B$ 1: Sub $A = A - B$ <i>arg2</i> : Memory bank number of data for processing in primary selection <i>arg3</i> : Memory bank number of data for processing in secondary selection	None	Process using two data on two memory banks
Others	show(<i>arg1</i>)	<i>arg1</i> : Variable; both characteristic and numerical	None	Display of <i>arg1</i>
	Print("...", <i>arg1</i>)	"...": Characters before <i>arg1</i> <i>arg1</i> : Variable; both characteristic and numerical	None	Display of <i>arg1</i> with characters shown in "...". [Command example] a=1;print("a=",a) [Output] a=1
	Date()	None	Date; yymmdd	Date; yymmdd
	wait(<i>arg1</i>)	<i>arg1</i> : Waiting time per second; numerical variables	None	Waiting time per second. Delay, <i>arg1</i> + 200msec, may occur.

Examples of MiCAM01 Macro program

Sample of macro programming is as below,

1: After acquisition with 16 times average, the original data is stored. And double process of "Spatial Filter PX2", and single process of "Temporal Filter 2FRM", then processed data is stored within different name. Same work is repeated 3 times.

Command	Comment
DataDir("C:¥MiCAM¥Data¥986030")	# Transfer data on directory for storage.
a=date();	# Set today's date on numerical variable.
b=0;	# Initialize b as 0.
\$c="A"	# Insert "A" to character variable; Add "A" to the end of acquired data file name.
\$d="F"	# Insert "F" to character variable; Add "A" to the end of processed data file name.
AqsSetupPageMode(6);	# Set 16 times average.
While(b<3){	# Carry out until b is lower than 3; in this way command between { and } is repeated 3 times.
AqsStart(b);	# Start of acquisition, and store data on memory bank "b".
AqsEnd(b,0);	# End of acquisition on memory bank "b", and use default name for acquired data.
\$e=a+b+\$c+".dml";	# File name for acquired data, original data; yymmddnA,dml.
\$f=a+b+\$d+".dml";	# File name for processed data, filtered data; yymmddnF.dml.
DataSave(b, \$e, 0)	# Save original data on memory bank "b" with the name of \$e without any comment.
Process1(0, b);	# Process data on memory bank "b" by "Spatial filte PX2r".
Process1(0,b);	# Process data on memory bank "b" by "Spatial filter PX2".
Process1(1,b);	# Process data on memory bank "b" by "Temporal filter 2FRM".
DataSave(b, \$f, "after filter");	# Attach and save the comment "after filter", by the name processed data \$f
b++	# Incremant
}	

2: Creation of an initial-setting program for the experiment conditions used frequently

Command	Comment
ConfigShuterdly(200)	# Set Shutter delay at 200msec
AqsSetupSampling(75)	# Set sampling rate at 0.75msec/frame
AqsSetupTrigger(1)	# Use external trigger channel 1
#AqsSetupTrigger(Start by)	
AqsSetupPageMode(6)	# Set 16 times averaging
#AqsSetupPageMode(16 Average)	
AqsSetupDGOOut1Dely(50)	# Set delay tome of digital out at 50msec