

```

1  *****
2  ;
3  ;* Name   : GBSCTRL.gcb
4  ;* Author : Michael St. Pierre
5  ;* Notice : Copyright (c) 2019 Mytek Controls
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7  ;* Date   : 12/9/2019
8
9  #define Version 12 ; Version Number assumes decimal point
10
11 ;* Notes :
12 ;*       : Cranked up AGC (Segment5: Registers 0x09,0x0A,0x0B)
13 ;*       :
14 ;*       : Compiled in Great Cow Basic version 0.98.06
15 ;*       : Source: <https://gcbasic.sourceforge.net/>
16 ;*
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29 ;*
30 *****
31 ;
32 ; 8 Mhz internal factory calibrated oscillator
33
34 #chip 12F1572, 8
35
36 ; Enabling Weak Pull-Ups
37
38 OPTION_REG.7 = 0 ;enabling Port A pull-ups in general.
39 Set WPUA2 = 1 ;Port A input 2 (switch) pulled up
40 Set WPUA3 = 1 ;Port A input 3 (switch) pulled up
41 #option Volatile PORTA.2
42 #option Volatile PORTA.3
43
44 ; Define I2C settings
45
46 #define I2C_MODE Master
47 #define I2C_DATA PORTA.5 ;SDA Port
48 #define I2C_CLOCK PORTA.4 ;SCL Port
49 #define I2C_ADDRESS 0x2E ;address of the GBS slave device
50
51 ; Define Switch and LED ports
52
53 #define GRN PORTA.0 ;Ready LED
54 Dir GRN Out
55 #define RED PORTA.1 ;Busy LED & Version Blink
56 Dir RED Out
57 #define SA PORTA.2 ;Dipswitch: Low/High resolution
58 Dir SA In
59 #define SB PORTA.3 ;Dipswitch: 50/60Hz
60 Dir SB In

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61
62 RED=1 ;Initially set LED to RED (BUSY)
63 GRN=0
64
65 ; I2C Sub Routine to Set which Bank (segment) will be active
66 ; Calling Parameters: 1
67 ; Bank: 0-5 (specifies 1 of 6 possible TV5725 segments)
68
69 Sub SetBank (In Bank)
70 Repeat 3 ;requires 3 passes to make bank selection stick
71 I2CStart
72 I2CSend I2C_ADDRESS
73 I2CSend 0xF0
74 I2CSend Bank
75 End Repeat
76 I2CStop
77 End Sub
78
79 ; I2C Sub Routine to 'Write One Byte' to specified register
80 ; Calling Parameters: 3
81 ; Bank: 0-5 (specifies 1 of 6 possible TV5725 segments)
82 ; Reg: 0-159 (specifies a specific register within the segment)
83 ; Value: 0-255 (specifies a byte value to write into the register)
84
85 Sub WriteByte (In Bank, In Reg, In Value)
86 GoSub SetBank (Bank)
87 I2CStart
88 I2CSend I2C_ADDRESS
89 I2CSend Reg
90 I2CSend Value
91 I2CStop
92 End Sub
93
94 Sub GetSW
95 Dig1 = SA
96 Dig2 = SB
97 DipSW = (Dig2*2) + Dig1
98 End Sub
99
100 ;=====
101 ; Main Program Loop
102 ;=====
103
104 wait 500 ms ;small pause to allow GBS to fully power-up
105
106 GoSub GetSW ;retrieve DipSwitch Setting
107 SW_old = DipSW ;store value for compare
108
109 ; Set segment bank address, and then punch in the presets for that segment
110
111 For segment = 0 to 5
112
113 GoSub SetBank (segment) ;Set Bank Address = Segment
114
115 I2CStart
116 I2CSend I2C_ADDRESS
117 If segment=0 Then
118 I2CSend 0x40 ;register start address for Segment 0
119 Else
120 I2CSend 0x00 ;register start address for Segment 1-5

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121 End If
122
123 readtable Slen, segment+1, length ;retrieve segment length
124
125 ; Send the Presets
126 For register = 1 to length
127   Select Case segment
128     Case 0 ;Segment 0
129       readtable B0, register, data
130     Case 1 ;Segment 1
131       Select Case DipSW
132         Case 0
133           readtable NHR1, register, data ; NTSC 480i
134         Case 1
135           readtable NLR1, register, data ; NTSC 240p
136         Case 2
137           readtable PHR1, register, data ; PAL 576i
138         Case 3
139           readtable PLR1, register, data ; PAL 288p
140       End Select
141     Case 2 ;Segment 2
142       readtable B2, register, data
143     Case 3 ;Segment 3
144       Select Case DipSW
145         Case 0
146           readtable NHR3, register, data ; NTSC 480i
147         Case 1
148           readtable NLR3, register, data ; NTSC 240p
149         Case 2
150           readtable PHR3, register, data ; PAL 576i
151         Case 3
152           readtable PLR3, register, data ; PAL 288p
153       End Select
154     Case 4 ;Segment 4
155       readtable B4, register, data
156     Case 5 ;Segment 5
157       readtable B5, register, data
158   End Select
159   I2CSend data
160   Next register
161   I2CStop
162 Next segment
163
164 ; Activate !!!
165 GoSub WriteByte (0, 0x46, 0x00) ;Soft Reset
166 GoSub WriteByte (0, 0x46, 0xFF)
167 GoSub WriteByte (0, 0x47, 0x00) ;Soft Reset
168 GoSub WriteByte (0, 0x47, 0xFF)
169 GoSub WriteByte (5, 0x11, 0x12) ;Latching PLLAD for Pixel Clock
170 GoSub WriteByte (5, 0x11, 0x92)
171
172 ; All Done - Blink GRN LED to indicate Firmware Version
173 ; and poll dipswitch to see if there has been a change
174
175 RED=0 ;clear RED LED
176
177 Do Forever:
178   GoSub GetSW ;retrieve DipSwitch Setting
179   If DipSW <> SW_old Then RESET ;if it's changed re-send Presets

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180
181 For blink=1 to Version /10 ;Long blink = firmware major version
182 GRN=1
183 wait 1 s
184 GRN=0
185 wait 500 ms
186 Next blink
187
188 For blink=1 to Version % 10 ;Short blink = firmware minor version
189 GRN=1
190 wait 250 ms
191 GRN=0
192 wait 250 ms
193 Next blink
194
195 wait 1 s
196 Loop
197
198 ;=====
199 ; Preset Tables
200 ;=====
201
202 ; Define Segment Lengths
203
204 Table Slen
205 32
206 144
207 64
208 128
209 96
210 112
211 End Table
212
213 ;-----
214
215 ; Base Preset Tables
216
217 ; Misc
218 Table B0
219 124, 164, 0, 0, 37, 1, 95, 7, 63, 0, 0, 0, 0, 42, 0, 48
220 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
221 End Table
222
223 ; De-Interlace
224 Table B2
225 255, 3, 204, 0, 0, 0, 5, 5, 7, 0, 76, 4, 204, 152, 255, 73
226 33, 136, 142, 0, 0, 0, 124, 35, 214, 208, 0, 16, 0, 0, 0, 16
227 81, 2, 4, 15, 0, 0, 76, 12, 0, 0, 0, 0, 0, 0, 0, 0
228 0, 0, 52, 0, 136, 71, 3, 11, 4, 100, 11, 4, 143, 0, 0, 0
229 End Table
230
231 ; Memory, Capture/Playback, FIFO
232 Table B4
233 130, 48, 0, 0, 48, 17, 66, 48, 1, 148, 17, 127, 0, 116, 0, 6
234 0, 146, 1, 1, 150, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
235 0, 43, 3, 31, 255, 255, 207, 255, 255, 31, 0, 164, 30, 0, 128, 0
236 0, 0, 0, 8, 0, 0, 16, 180, 204, 179, 0, 2, 0, 4, 3, 0
237 4, 0, 105, 0, 255, 255, 7, 255, 255, 7, 0, 68, 0, 224, 40, 62
238 192, 0, 0, 0, 104, 1, 192, 180, 204, 90, 204, 76, 0, 0, 0, 0
239 End Table

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240
241 ; ADC, Sync Processor
242 Table B5
243 216, 0, 87, 241, 0, 0, 63, 63, 63, 25, 25, 25, 0, 0, 0, 0
244 0, 144, 179, 198, 0, 0, 32, 206, 133, 130, 0, 0, 0, 0, 128, 4
245 208, 32, 15, 0, 64, 0, 5, 0, 0, 0, 15, 0, 0, 4, 0, 4
246 0, 47, 0, 40, 3, 21, 0, 4, 4, 15, 10, 0, 0, 0, 192, 3
247 11, 39, 6, 126, 6, 0, 192, 5, 192, 4, 192, 52, 192, 103, 192, 103
248 192, 0, 192, 5, 192, 192, 33, 192, 5, 192, 1, 200, 6, 0, 0, 0
249 0, 0, 0, 15, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
250 End Table
251
252 ;-----
253
254 ; 240p_60Hz_1280x1024 NTSC Preset Tables
255
256 ; Input Formatter, HD-Bypass, Mode detect
257 Table NLR1
258 96, 224, 100, 255, 255, 255, 255, 255, 255, 255, 79, 134, 5, 89, 203
259 18, 0, 71, 0, 44, 3, 92, 0, 87, 3, 135, 0, 0, 2, 4, 0
260 56, 0, 146, 3, 155, 6, 159, 6, 4, 0, 0, 0, 0, 0, 0
261 202, 0, 128, 0, 63, 0, 128, 44, 204, 0, 0, 0, 0, 1, 192, 0
262 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0
263 0, 1, 192, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
264 208, 34, 32, 39, 65, 62, 178, 154, 78, 214, 177, 142, 124, 99, 139, 118
265 112, 98, 133, 105, 83, 72, 93, 148, 178, 70, 198, 238, 140, 98, 118, 156
266 0, 0, 53, 0, 0, 12, 202, 0, 0, 0, 0, 0, 0, 0, 0
267 End Table
268
269 ; Video Processor, PIP
270 Table NLR3
271 2, 242, 164, 194, 176, 164, 6, 22, 108, 194, 150, 0, 0, 6, 8, 128
272 226, 164, 15, 16, 172, 128, 152, 18, 30, 2, 0, 0, 0, 0, 0, 0
273 0, 0, 0, 0, 96, 3, 0, 207, 38, 32, 220, 17, 224, 47, 32, 240
274 64, 26, 0, 0, 0, 125, 31, 44, 0, 0, 0, 0, 0, 0, 144, 0
275 2, 3, 0, 0, 248, 31, 248, 31, 248, 30, 208, 32, 248, 10, 142, 30
276 48, 0, 56, 8, 36, 10, 11, 234, 26, 0, 0, 26, 0, 196, 63, 4
277 4, 155, 128, 9, 233, 239, 127, 64, 210, 13, 216, 223, 63, 0, 0, 0
278 0, 8, 0, 180, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
279 End Table
280
281 ;-----
282
283 ; 288p_50Hz_1280x1024 PAL Preset Tables
284
285 ; Input Formatter, HD-Bypass, Mode detect
286 Table PLR1
287 96, 224, 100, 255, 255, 255, 255, 255, 255, 255, 79, 134, 5, 89, 203
288 18, 0, 71, 0, 44, 3, 92, 0, 87, 3, 135, 0, 111, 2, 16, 0
289 56, 0, 146, 3, 155, 6, 159, 6, 4, 0, 0, 0, 0, 0, 0
290 202, 0, 128, 0, 63, 0, 128, 44, 204, 0, 0, 0, 0, 1, 192, 0
291 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0
292 0, 1, 192, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
293 208, 34, 32, 39, 65, 62, 178, 154, 78, 214, 177, 142, 124, 99, 139, 118
294 112, 98, 133, 105, 83, 72, 93, 148, 178, 70, 198, 238, 140, 98, 118, 156
295 0, 0, 53, 0, 0, 12, 202, 0, 0, 0, 0, 0, 0, 0, 0
296 End Table
297
298 ; Video Processor, PIP

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299 Table PLR3
300 2, 244, 164, 194, 176, 164, 6, 23, 124, 194, 150, 0, 0, 6, 8, 128
301 226, 164, 15, 16, 172, 128, 152, 194, 31, 2, 0, 0, 0, 0, 0, 0
302 0, 0, 0, 96, 3, 0, 207, 38, 32, 220, 17, 224, 47, 32, 240
303 64, 26, 0, 0, 0, 125, 31, 44, 0, 0, 0, 0, 0, 0, 144, 0
304 2, 3, 0, 0, 248, 31, 248, 31, 248, 30, 208, 32, 248, 10, 142, 30
305 48, 0, 56, 8, 36, 10, 11, 234, 26, 0, 0, 26, 0, 196, 63, 4
306 4, 155, 128, 9, 233, 239, 127, 64, 210, 13, 216, 223, 63, 0, 0, 0
307 0, 8, 0, 180, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
308 End Table
309
310 ;-----
311
312 ; 480i_60Hz_1280x1024 NTSC Preset Tables
313
314 ; Input Formatter, HD-Bypass, Mode detect
315 Table NHR1
316 96, 224, 100, 255, 255, 255, 255, 255, 255, 255, 79, 134, 5, 89, 203
317 18, 0, 71, 0, 44, 3, 92, 0, 87, 3, 135, 0, 0, 2, 16, 0
318 56, 0, 146, 3, 155, 6, 159, 6, 4, 0, 0, 0, 0, 0, 0, 0
319 202, 0, 128, 0, 63, 0, 128, 44, 204, 0, 0, 0, 0, 1, 192, 0
320 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0
321 0, 1, 192, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
322 208, 34, 32, 39, 65, 62, 178, 154, 78, 214, 177, 142, 124, 99, 139, 118
323 112, 98, 133, 105, 83, 72, 93, 148, 178, 70, 198, 238, 140, 98, 118, 156
324 0, 0, 53, 0, 0, 12, 202, 0, 0, 0, 0, 0, 0, 0, 0, 0
325 End Table
326
327 ; Video Processor, PIP
328 Table NHR3
329 2, 242, 164, 194, 176, 164, 6, 23, 124, 194, 150, 0, 0, 6, 8, 128
330 226, 164, 15, 16, 172, 128, 152, 66, 30, 2, 0, 0, 0, 0, 0, 0
331 0, 0, 0, 96, 3, 0, 207, 38, 32, 220, 17, 224, 47, 32, 240
332 64, 26, 0, 0, 0, 125, 31, 44, 0, 0, 0, 0, 0, 0, 144, 0
333 2, 3, 0, 0, 248, 31, 248, 31, 248, 30, 208, 32, 248, 10, 142, 30
334 48, 0, 56, 8, 36, 10, 11, 234, 26, 0, 0, 26, 0, 196, 63, 4
335 4, 155, 128, 9, 233, 239, 127, 64, 210, 13, 216, 223, 63, 0, 0, 0
336 0, 8, 0, 180, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
337 End Table
338
339 ;-----
340
341 ; 576i_50Hz_1280x1024 PAL Preset Tables
342
343 ; Input Formatter, HD-Bypass, Mode detect
344 Table PHR1
345 96, 224, 100, 255, 255, 255, 255, 255, 255, 255, 79, 134, 5, 89, 203
346 18, 0, 71, 0, 44, 3, 92, 0, 87, 3, 135, 0, 111, 2, 26, 0
347 56, 0, 146, 3, 155, 6, 159, 6, 4, 0, 0, 0, 0, 0, 0, 0
348 202, 0, 128, 0, 63, 0, 128, 44, 204, 0, 0, 0, 0, 1, 192, 0
349 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0, 0, 1, 192, 0
350 0, 1, 192, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
351 208, 34, 32, 39, 65, 62, 178, 154, 78, 214, 177, 142, 124, 99, 139, 118
352 112, 98, 133, 105, 83, 72, 93, 148, 178, 70, 198, 238, 140, 98, 118, 156
353 0, 0, 53, 0, 0, 12, 202, 0, 0, 0, 0, 0, 0, 0, 0, 0
354 End Table
355
356 ; Video Processor, PIP
357 Table PHR3

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358 2, 244, 164, 194, 176, 164, 6, 23, 124, 194, 150, 0, 0, 6, 8, 128
359 226, 164, 15, 16, 172, 128, 152, 194, 35, 2, 0, 0, 0, 0, 0, 0
360 0, 0, 0, 0, 96, 3, 0, 207, 38, 32, 220, 17, 224, 47, 32, 240
361 64, 26, 0, 0, 0, 125, 31, 44, 0, 0, 0, 0, 0, 0, 144, 0
362 2, 3, 0, 0, 248, 31, 248, 31, 248, 30, 208, 32, 248, 10, 142, 30
363 48, 0, 56, 8, 36, 10, 11, 234, 26, 0, 0, 26, 0, 196, 63, 4
364 4, 155, 128, 9, 233, 239, 127, 64, 210, 13, 216, 223, 63, 0, 0, 0
365 0, 8, 0, 180, 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
366 **End Table**
367