Data Path: analog multiplexer and A/D conversion

Project TFS path: $/FW SVI FF Releases/Release1/ FIRMWARE

Project changeset version: 35043

Starting point: Device driver for analog multiplexer and A/D conversion

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Containing file | | FIRMWARE\framework\bios\ ad.c | Review Date | Reviewer |
| Function or data | | bios\_InitAd | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | NO FINDINGS | | |
| Impact | |  | | |
| Resolution | |  | | |
|  | | | | |
| Function or data | | bios\_GetAdRawData | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | NO FINDINGS | | |
| Impact | |  | | |
| Resolution | |  | | |
|  | | | | |
| Function or data | | channel\_convert | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | NO FINDINGS | | |
| Impact | |  | | |
| Resolution | |  | | |
|  | | | | |
| Function or data | | special\_channel\_convert | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | NO FINDINGS | | |
| Impact | |  | | |
| Resolution | |  | | |
|  | | | | |
| Function or data | | bios\_WriteMeasureSequence | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | From line 205 to 213, if \*chk= END\_SEQ\_TWO, in next for loop, ad\_IsChannelPowered(\*chk) input would be over range. Because NUMBER\_OF\_AD\_CHANNELS = 13, but END\_SEQ\_TWO=0x20. | | |
| Impact | |  | | |
| Resolution | | Change END\_SEQ\_TWO to NUMBER\_OF\_AD\_CHANNELS in line 205 and 209 | | |
| Comment | | An A/D sequence is one of the predefined constant arrays representing an unrolled sequence with stops and ending with stop/restart. The format is explained in the doc for bios\_WriteMeasureSequence(). The correctness can be established by examining the generating macros, or in the debugger’s Watch window by looking at sequences in adtbl.c.  Markers only need to be greater than all channels ids. This deserves a CONST\_ASSERT; so a bug should be entered for development branch. But nothing is broken yet. | | |
|  | | | | |
| Function or data | | bios\_MeasureAd | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | Line 228, 229, 230, temp variable temp2/kt/sample could be defined just before usage. | | |
| Impact | |  | | |
| Resolution | | Put Line 228, 229, 230 to line 266, just before the do loop. | | |
| Comment | | Please fill the Impact line.  It would seem to me a better coding style but it is… just coding style. Unless JL wants to propose the rule for the coming coding standard, to which she is welcome☺ | | |
|  | | | | |
| TFS wit |  | Line 240, why u8 lookaheadhannel = \*(seq + 1u);  typedef struct ADSeqState\_t  {  const u8 \*measureSeqBase; //!< pointer to base of seq table (first fast channel)  const u8 \*pSeq; //!< pointer to current channel  u16 CheckWord;  } ADSeqState\_t;  seq+1u=? | | |
| Impact | |  | | |
| Resolution | |  | | |
| Comment | | Looks like a typo deserving a bug. look\_ahead\_**c**hannel is the next A/D channel to convert. It is of course next in the list, and because of the test in line 296, is not outside of array boundary | | |
|  | | | | |
| TFS wit |  | Line 321, NUMBER\_OF\_AD\_CHANNELS=13, but the comparison is END\_SEQ\_TWO. And END\_SEQ\_TWO=0x20. | | |
| Impact | | Over range | | |
| Resolution | |  | | |
| Comment | | See comment above on the same issue | | |
|  | | | | |
| Function or data | | ad\_GetTerminalDiagResult | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | NO SIGNIFICANT FINDINGS | | |
| Impact | |  | | |
| Resolution | | diagResult is not checksum-protected, it should be. | | |
| Comment | | Note that this and below code is compiled out. | | |
|  | | | | |
| Function or data | | waste | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | NO FINDINGS | | |
| Impact | |  | | |
| Resolution | |  | | |
|  | | | | |
| Function or data | | ad\_PerformTerminalBoardDiag | 14-03-06 | JL |
|  | | | | |
| TFS wit |  | Line 394, magic number 500. | | |
| Impact | |  | | |
| Resolution | | Change to macro definition with meaning. | | |
|  | | | | |