

# **Polyspace Bug Finder**

**Detailed Report for Project: syn6988**

**Report Author: LibDriver**

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by Report Author: LibDriver

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Analysis Author(s): LibDriver

Polyspace Version(s): Polyspace Bug Finder 3.2 (R2020a)

Project Version(s): 1.0

Result Folder(s):

E:\Polyspace\syn6988\Module\BF\_Result

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# Chapter 1. Polyspace Bug Finder Summary

Table 1.1. Project Summary

|                         | Count | Reviewed | Unreviewed | Pass/Fail |
|-------------------------|-------|----------|------------|-----------|
| MISRA C:2012 Guidelines | 124   | 124      | 0          | Pass      |
| Defects                 | 0     | 0        | 0          | Pass      |
| Total                   | 124   | 124      | 0          | Pass      |

Table 1.2. Summary By File

| File                                                            | Defects (Reviewed) | MISRA C:2012 Guidelines (Reviewed) |
|-----------------------------------------------------------------|--------------------|------------------------------------|
| E:\Github\syn6988\example\driver_syn6988_basic.c                | 0 (0)              | 4 (4)                              |
| E:\Github\syn6988\example\driver_syn6988_basic.h                | 0 (0)              | 0 (0)                              |
| E:\Github\syn6988\interface\driver_syn6988_interface.h          | 0 (0)              | 0 (0)                              |
| E:\Github\syn6988\interface\driver_syn6988_interface_template.c | 0 (0)              | 0 (0)                              |
| E:\Github\syn6988\src\driver_syn6988.c                          | 0 (0)              | 12 (12)                            |
| E:\Github\syn6988\src\driver_syn6988.h                          | 0 (0)              | 0 (0)                              |
| E:\Github\syn6988\test\driver_syn6988_synthesis_test.c          | 0 (0)              | 108 (108)                          |
| E:\Github\syn6988\test\driver_syn6988_synthesis_test.h          | 0 (0)              | 0 (0)                              |

# Chapter 2. MISRA C:2012 Guidelines

## MISRA C:2012 Guidelines Summary - Violations by File

| File                                                   | Total      |
|--------------------------------------------------------|------------|
| E:\Github\syn6988\example\driver_syn6988_basic.c       | 4          |
| E:\Github\syn6988\src\driver_syn6988.c                 | 12         |
| E:\Github\syn6988\test\driver_syn6988_synthesis_test.c | 108        |
| <b>Total</b>                                           | <b>124</b> |

## MISRA C:2012 Guidelines Violations

Table 2.1. E:\Github\syn6988\example\driver\_syn6988\_basic.c

| ID | Guideline | Message                                                                                           | Function   | Severity | Status    | Comment         |
|----|-----------|---------------------------------------------------------------------------------------------------|------------|----------|-----------|-----------------|
| 51 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 10 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 93 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 13 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low      | Justified | delay function. |

Table 2.2. E:\Github\syn6988\src\driver\_syn6988.c

| ID  | Guideline | Message                                                                                                                                                                            | Function                | Severity | Status    | Comment                  |
|-----|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------|-----------|--------------------------|
| 123 | D4.14     | The validity of values received from external sources shall be checked.<br>Loop is controlled by a value from an unsecure source.<br>Loop may be infinite.                         | a_check_busy()          | Low      | Justified | Loop can't be infinite.  |
| 118 | D4.14     | The validity of values received from external sources shall be checked.<br>Dereferenced pointer is from an unsecure source.<br>Pointer may be NULL or may point to unknown memory. | syn6988_get_interface() | Low      | Justified | (handle == NULL)checked. |

|     |       |                                                                                                                                                                                                                                                                                |                                |     |              |                                                                                                |
|-----|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----|--------------|------------------------------------------------------------------------------------------------|
| 119 | D4.14 | The validity of values received from external sources shall be checked.<br>Dereferenced pointer is from an unsecure source.<br>Pointer may be NULL or may point to unknown memory.                                                                                             | syn6988_get_interface()        | Low | Justified    | (handle == NULL)checked.                                                                       |
| 120 | D4.14 | The validity of values received from external sources shall be checked.<br>Dereferenced pointer is from an unsecure source.<br>Pointer may be NULL or may point to unknown memory.                                                                                             | syn6988_get_text_type()        | Low | Justified    | (handle == NULL)checked.                                                                       |
| 121 | D4.14 | The validity of values received from external sources shall be checked.<br>Dereferenced pointer is from an unsecure source.<br>Pointer may be NULL or may point to unknown memory.                                                                                             | syn6988_get_text_type()        | Low | Justified    | (handle == NULL)checked.                                                                       |
| 3   | 17.1  | The features of <stdarg.h> shall not be used.                                                                                                                                                                                                                                  | syn6988_synthesis_text()       | Low | Not a defect | We use this function to convert driver data and drivers guarantee the safety of the operation. |
| 1   | 17.1  | The features of <stdarg.h> shall not be used.<br>The macro 'va_start' shall not be used.                                                                                                                                                                                       | File Scope                     | Low | Not a defect | We use this function to convert driver data and drivers guarantee the safety of the operation. |
| 124 | D4.14 | The validity of values received from external sources shall be checked.<br>Third argument to 'vsprintf' is from an unsecure source.<br>Argument may be NULL or not NULL-terminated.                                                                                            | syn6988_synthesis_text()       | Low | Justified    | (handle == NULL)checked.                                                                       |
| 2   | 17.1  | The features of <stdarg.h> shall not be used.<br>The macro 'va_end' shall not be used.                                                                                                                                                                                         | File Scope                     | Low | Not a defect | We use this function to convert driver data and drivers guarantee the safety of the operation. |
| 4   | 10.3  | The value of an expression shall not be assigned to an object with a narrower essential type or of a different essential type category.<br>The expression (of essential type unsigned on 16 bits) is assigned to an object with a narrower essential type (unsigned on 8 bits) | syn6988_synthesis_text()       | Low | Not a defect | We use this function to convert driver data and drivers guarantee the safety of the operation. |
| 5   | 10.3  | The value of an expression shall not be assigned to an object with a narrower essential type or of a different essential type category.<br>The expression (of essential type unsigned on 16 bits) is assigned to an object with a narrower essential type (unsigned on 8 bits) | syn6988_set_command_with_arg() | Low | Not a defect | We use this function to convert driver data and drivers guarantee the safety of the operation. |
| 122 | D4.14 | The validity of values received from external sources shall be checked.<br>Dereferenced pointer is from an unsecure source.<br>Pointer may be NULL or may point to unknown memory.                                                                                             | syn6988_set_command()          | Low | Justified    | (handle == NULL)checked.                                                                       |

**Table 2.3. E:\Github\syn6988\test\driver\_syn6988\_synthesis\_test.c**

| ID  | Guideline | Message                                                                                           | Function   | Severity | Status    | Comment         |
|-----|-----------|---------------------------------------------------------------------------------------------------|------------|----------|-----------|-----------------|
| 106 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 100 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 97  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 96  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 66  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 79  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 88  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 57  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 116 | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 81  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 98  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 6   | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 91  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 63  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |
| 30  | 2.2       | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low      | Justified | print function. |

|     |     |                                                                                                   |            |     |           |                 |
|-----|-----|---------------------------------------------------------------------------------------------------|------------|-----|-----------|-----------------|
| 42  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 82  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 103 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 74  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 87  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 113 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 83  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 65  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 85  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 17  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 112 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 84  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 43  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 35  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 55  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 104 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 15  | 2.2 | There shall be no dead code.                                                                      | File Scope | Low | Justified | print function. |



|     |     |                                                                                                   |            |     |           |                 |
|-----|-----|---------------------------------------------------------------------------------------------------|------------|-----|-----------|-----------------|
|     |     | The call to function syn6988_interface_debug_print has no effect.                                 |            |     |           |                 |
| 115 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 47  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 108 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 52  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 7   | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 50  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 75  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 62  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 60  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 78  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 110 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 117 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 21  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 73  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 20  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 111 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |

|     |     |                                                                                                   |            |     |           |                 |
|-----|-----|---------------------------------------------------------------------------------------------------|------------|-----|-----------|-----------------|
| 71  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 99  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 61  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 68  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 58  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 59  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 80  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 76  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 86  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 45  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 89  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 70  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 72  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 101 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 109 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 41  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 69  | 2.2 | There shall be no dead code.                                                                      | File Scope | Low | Justified | print function. |

|     |     |                                                                                                   |            |     |           |                 |
|-----|-----|---------------------------------------------------------------------------------------------------|------------|-----|-----------|-----------------|
|     |     | The call to function syn6988_interface_debug_print has no effect.                                 |            |     |           |                 |
| 12  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 105 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 46  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 102 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 38  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 18  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 56  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 40  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 48  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 11  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 92  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 53  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 94  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 22  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 36  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 25  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |

|     |     |                                                                                                   |            |     |           |                 |
|-----|-----|---------------------------------------------------------------------------------------------------|------------|-----|-----------|-----------------|
| 64  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 34  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 29  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 49  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 95  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 28  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 14  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 33  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 31  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 44  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 24  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 19  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 54  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 114 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 67  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 9   | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 90  | 2.2 | There shall be no dead code.                                                                      | File Scope | Low | Justified | print function. |

|     |     |                                                                                                   |            |     |           |                 |
|-----|-----|---------------------------------------------------------------------------------------------------|------------|-----|-----------|-----------------|
|     |     | The call to function syn6988_interface_debug_print has no effect.                                 |            |     |           |                 |
| 32  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_delay_ms has no effect.    | File Scope | Low | Justified | delay function. |
| 26  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 23  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 37  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 39  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 77  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 16  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 8   | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 107 | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |
| 27  | 2.2 | There shall be no dead code.<br>The call to function syn6988_interface_debug_print has no effect. | File Scope | Low | Justified | print function. |

# Chapter 3. Defects

## Defects

No defects were found.

# Chapter 4. Appendix 1 - Configuration Settings

## Polyspace Settings

| Option                      | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -author                     | LibDriver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| -bug-finder                 | true                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -compiler                   | iar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| -D                          | __TID__=14,__SIZE_T_TYPE__=unsigned int,__PTRDIFF_T_TYPE__=signed int,__IAR_SYSTEMS_ICC=1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| -date                       | 26/08/2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| -dos                        | true                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -I                          | E:\Github\syn6988\src,E:\Github\syn6988\example,E:\Github\syn6988\test,E:\Github\syn6988\interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -import-comments            | E:\Polyspace\syn6988\Module\BF_Result                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -lang                       | C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| -little-endian              | true                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -logical-signed-right-shift | true                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -misra3                     | mandatory-required                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| -prog                       | syn6988                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| -results-dir                | E:\Polyspace\syn6988\Module\BF_Result                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| -sfr-types                  | sfr8=8,sfr16=16,sfr32=32,sfr=8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| -target                     | mcpu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| -verif-version              | 1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| -checkers                   | ALIGNMENT_CHANGE, ASSERT, ATOMIC_VAR_ACCESS_TWICE, ATOMIC_VAR_SEQUENCE_NOT_ATOMIC, BAD_EQUAL_EQUAL_USE, BAD_EQUAL_USE, BAD_FREE, BAD_LOCK, BAD_PTR_SCALING, BAD_UNLOCK, CHARACTER_MISUSE, CHAR_EOF_CONFUSED, CLOSED_RESOURCE_USE, CONSTANT_OBJECT_WRITE, DATA_RACE, DATA_RACE_STD_LIB, DEADLOCK, DEAD_CODE, DECL_MISMATCH, DOUBLE_DEALLOCATION, DOUBLE_LOCK, DOUBLE_RESOURCE_CLOSE, DOUBLE_RESOURCE_OPEN, DOUBLE_UNLOCK, ERRNO_MISUSE, FILE_OBJECT_MISUSE, FLEXIBLE_ARRAY_MEMBER_STRUCT_MISUSE, FLOAT_ABSORPTION, FLOAT_CONV_OVFL, FLOAT_STD_LIB, FLOAT_ZERO_DIV, FREED_PTR, FUNC_CAST, IMPROPER_ARRAY_INIT, INLINE_CONSTRAINT_NOT_RESPECTED, INT_CONV_OVFL, INT_STD_LIB, INT_ZERO_DIV, INVALID_ENV_POINTER, INVALID_MEMORY_ASSUMPTION, INVALID_VA_LIST_ARG, IO_INTERLEAVING, |

LOCAL\_ADDR\_ESCAPE, MACRO\_USED\_AS\_OBJECT, MEMCMP\_PADDING\_DATA, MEMCMP\_STRINGS, MEM\_STD\_LIB, MISSING\_ERRNO\_RESET, MISSING\_NULL\_CHAR, MISSING\_RETURN, NON\_INIT\_PTR, NON\_INIT\_VAR, NON\_POSITIVE\_VLA\_SIZE, NULL\_PTR, OPERATOR\_PRECEDENCE, OTHER\_STD\_LIB, OUT\_BOUND\_ARRAY, OUT\_BOUND\_PTR, PARTIALLY\_ACCESSED\_ARRAY, PRE\_DIRECTIVE\_MACRO\_ARG, PRE\_UCNAME\_JOIN\_TOKENS, PTR\_CAST, PTR\_SIZEOF\_MISMATCH, PTR\_TO\_DIFF\_ARRAY, PUTENV\_AUTO\_VAR, READ\_ONLY\_RESOURCE\_WRITE, RESOURCE\_LEAK, SIDE\_EFFECT\_IGNORED, SIGN\_CHANGE, SIG\_HANDLER\_CALLING\_SIGNAL, SIG\_HANDLER\_COMP\_EXCP\_RETURN, SIG\_HANDLER\_ERRNO\_MISUSE, SIG\_HANDLER\_SHARED\_OBJECT, SIZEOF\_MISUSE, STD\_FUNC\_ARG\_MISMATCH, STREAM\_WITH\_SIDE\_EFFECT, STRING\_FORMAT, STRLIB\_BUFFER\_OVERFLOW, STRLIB\_BUFFER\_UNDERFLOW, STR\_FORMAT\_BUFFER\_OVERFLOW, STR\_STD\_LIB, TEMP\_OBJECT\_ACCESS, TOO\_MANY\_VA\_ARG\_CALLS, TYPEDEF\_MISMATCH, UINT\_CONV\_OVFL, UNPROTOTYPED\_FUNC\_CALL, UNREACHABLE, USELESS\_IF, USELESS\_WRITE, VAR\_SHADOWING, VA\_ARG\_INCORRECT\_TYPE, VA\_START\_INCORRECT\_TYPE, VA\_START\_MISUSE

## Coding Standard Configuration

**Table 4.1. MISRA C:2012 Guidelines Configuration**

| Guideline | Description                                                                                                                                   | Mode     | Comment         | Enabled |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|---------|
| D1.1      | Any implementation-defined behaviour on which the output of the program depends shall be documented and understood.                           | required | -               | yes     |
| D2.1      | All source files shall compile without any compilation errors.                                                                                | required | -               | yes     |
| D3.1      | All code shall be traceable to documented requirements.                                                                                       | required | Not enforceable | no      |
| D4.1      | Run-time failures shall be minimized.                                                                                                         | required | -               | yes     |
| D4.2      | All usage of assembly language should be documented.                                                                                          | advisory | Not enforceable | no      |
| D4.3      | Assembly language shall be encapsulated and isolated.                                                                                         | required | -               | yes     |
| D4.4      | Sections of code should not be "commented out".                                                                                               | advisory | Not implemented | no      |
| D4.5      | Identifiers in the same name space with overlapping visibility should be typographically unambiguous.                                         | advisory | -               | no      |
| D4.6      | typedefs that indicate size and signedness should be used in place of the basic numerical types.                                              | advisory | -               | no      |
| D4.7      | If a function returns error information, then that error information shall be tested.                                                         | required | -               | yes     |
| D4.8      | If a pointer to a structure or union is never dereferenced within a translation unit, then the implementation of the object should be hidden. | advisory | -               | no      |
| D4.9      | A function should be used in preference to a function-like macro where they are interchangeable.                                              | advisory | -               | no      |
| D4.10     | Precautions shall be taken in order to prevent the contents of a header file being included more than once.                                   | required | -               | yes     |



|       |                                                                                                                                                 |          |   |     |
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| D4.11 | The validity of values passed to library functions shall be checked.                                                                            | required | - | yes |
| D4.12 | Dynamic memory allocation shall not be used.                                                                                                    | required | - | yes |
| D4.13 | Functions which are designed to provide operations on a resource should be called in an appropriate sequence.                                   | advisory | - | no  |
| D4.14 | The validity of values received from external sources shall be checked.                                                                         | required | - | yes |
| 1.1   | The program shall contain no violations of the standard C syntax and constraints, and shall not exceed the implementation's translation limits. | required | - | yes |
| 1.2   | Language extensions should not be used.                                                                                                         | advisory | - | no  |
| 1.3   | There shall be no occurrence of undefined or critical unspecified behaviour.                                                                    | required | - | yes |
| 2.1   | A project shall not contain unreachable code.                                                                                                   | required | - | yes |
| 2.2   | There shall be no dead code.                                                                                                                    | required | - | yes |
| 2.3   | A project should not contain unused type declarations.                                                                                          | advisory | - | no  |
| 2.4   | A project should not contain unused tag declarations.                                                                                           | advisory | - | no  |
| 2.5   | A project should not contain unused macro declarations.                                                                                         | advisory | - | no  |
| 2.6   | A function should not contain unused label declarations.                                                                                        | advisory | - | no  |
| 2.7   | There should be no unused parameters in functions.                                                                                              | advisory | - | no  |
| 3.1   | The character sequences /* and // shall not be used within a comment.                                                                           | required | - | yes |
| 3.2   | Line-splicing shall not be used in // comments.                                                                                                 | required | - | yes |
| 4.1   | Octal and hexadecimal escape sequences shall be terminated.                                                                                     | required | - | yes |
| 4.2   | Trigraphs should not be used.                                                                                                                   | advisory | - | no  |
| 5.1   | External identifiers shall be distinct.                                                                                                         | required | - | yes |
| 5.2   | Identifiers declared in the same scope and name space shall be distinct.                                                                        | required | - | yes |
| 5.3   | An identifier declared in an inner scope shall not hide an identifier declared in an outer scope.                                               | required | - | yes |
| 5.4   | Macro identifiers shall be distinct.                                                                                                            | required | - | yes |
| 5.5   | Identifiers shall be distinct from macro names.                                                                                                 | required | - | yes |
| 5.6   | A typedef name shall be a unique identifier.                                                                                                    | required | - | yes |
| 5.7   | A tag name shall be a unique identifier.                                                                                                        | required | - | yes |
| 5.8   | Identifiers that define objects or functions with external linkage shall be unique.                                                             | required | - | yes |

|      |                                                                                                                           |           |   |     |
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| 5.9  | Identifiers that define objects or functions with internal linkage should be unique.                                      | advisory  | - | no  |
| 6.1  | Bit-fields shall only be declared with an appropriate type.                                                               | required  | - | yes |
| 6.2  | Single-bit named bit fields shall not be of a signed type.                                                                | required  | - | yes |
| 7.1  | Octal constants shall not be used.                                                                                        | required  | - | yes |
| 7.2  | A "u" or "U" suffix shall be applied to all integer constants that are represented in an unsigned type.                   | required  | - | yes |
| 7.3  | The lowercase character "l" shall not be used in a literal suffix.                                                        | required  | - | yes |
| 7.4  | A string literal shall not be assigned to an object unless the object's type is "pointer to const-qualified char".        | required  | - | yes |
| 8.1  | Types shall be explicitly specified.                                                                                      | required  | - | yes |
| 8.2  | Function types shall be in prototype form with named parameters.                                                          | required  | - | yes |
| 8.3  | All declarations of an object or function shall use the same names and type qualifiers.                                   | required  | - | yes |
| 8.4  | A compatible declaration shall be visible when an object or function with external linkage is defined.                    | required  | - | yes |
| 8.5  | An external object or function shall be declared once in one and only one file.                                           | required  | - | yes |
| 8.6  | An identifier with external linkage shall have exactly one external definition.                                           | required  | - | yes |
| 8.7  | Functions and objects should not be defined with external linkage if they are referenced in only one translation unit.    | advisory  | - | no  |
| 8.8  | The static storage class specifier shall be used in all declarations of objects and functions that have internal linkage. | required  | - | yes |
| 8.9  | An object should be defined at block scope if its identifier only appears in a single function.                           | advisory  | - | no  |
| 8.10 | An inline function shall be declared with the static storage class.                                                       | required  | - | yes |
| 8.11 | When an array with external linkage is declared, its size should be explicitly specified.                                 | advisory  | - | no  |
| 8.12 | Within an enumerator list, the value of an implicitly-specified enumeration constant shall be unique.                     | required  | - | yes |
| 8.13 | A pointer should point to a const-qualified type whenever possible.                                                       | advisory  | - | no  |
| 8.14 | The restrict type qualifier shall not be used.                                                                            | required  | - | yes |
| 9.1  | The value of an object with automatic storage duration shall not be read before it has been set.                          | mandatory | - | yes |
| 9.2  | The initializer for an aggregate or union shall be enclosed in braces.                                                    | required  | - | yes |
| 9.3  | Arrays shall not be partially initialized.                                                                                | required  | - | yes |
| 9.4  | An element of an object shall not be initialized more than once.                                                          | required  | - | yes |

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|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|-----|
| 9.5  | Where designated initializers are used to initialize an array object the size of the array shall be specified explicitly.                                                           | required  | - | yes |
| 10.1 | Operands shall not be of an inappropriate essential type.                                                                                                                           | required  | - | yes |
| 10.2 | Expressions of essentially character type shall not be used inappropriately in addition and subtraction operations.                                                                 | required  | - | yes |
| 10.3 | The value of an expression shall not be assigned to an object with a narrower essential type or of a different essential type category.                                             | required  | - | yes |
| 10.4 | Both operands of an operator in which the usual arithmetic conversions are performed shall have the same essential type category.                                                   | required  | - | yes |
| 10.5 | The value of an expression should not be cast to an inappropriate essential type.                                                                                                   | advisory  | - | no  |
| 10.6 | The value of a composite expression shall not be assigned to an object with wider essential type.                                                                                   | required  | - | yes |
| 10.7 | If a composite expression is used as one operand of an operator in which the usual arithmetic conversions are performed then the other operand shall not have wider essential type. | required  | - | yes |
| 10.8 | The value of a composite expression shall not be cast to a different essential type category or a wider essential type.                                                             | required  | - | yes |
| 11.1 | Conversions shall not be performed between a pointer to a function and any other type.                                                                                              | required  | - | yes |
| 11.2 | Conversions shall not be performed between a pointer to an incomplete type and any other type.                                                                                      | required  | - | yes |
| 11.3 | A cast shall not be performed between a pointer to object type and a pointer to a different object type.                                                                            | required  | - | yes |
| 11.4 | A conversion should not be performed between a pointer to object and an integer type.                                                                                               | advisory  | - | no  |
| 11.5 | A conversion should not be performed from pointer to void into pointer to object.                                                                                                   | advisory  | - | no  |
| 11.6 | A cast shall not be performed between pointer to void and an arithmetic type.                                                                                                       | required  | - | yes |
| 11.7 | A cast shall not be performed between pointer to object and a non-integer arithmetic type.                                                                                          | required  | - | yes |
| 11.8 | A cast shall not remove any const or volatile qualification from the type pointed to by a pointer.                                                                                  | required  | - | yes |
| 11.9 | The macro NULL shall be the only permitted form of integer null pointer constant.                                                                                                   | required  | - | yes |
| 12.1 | The precedence of operators within expressions should be made explicit.                                                                                                             | advisory  | - | no  |
| 12.2 | The right hand operand of a shift operator shall lie in the range zero to one less than the width in bits of the essential type of the left hand operand.                           | required  | - | yes |
| 12.3 | The comma operator should not be used                                                                                                                                               | advisory  | - | no  |
| 12.4 | Evaluation of constant expressions should not lead to unsigned integer wrap-around.                                                                                                 | advisory  | - | no  |
| 12.5 | The sizeof operator shall not have an operand which is a function parameter declared as "array of                                                                                   | mandatory | - | yes |

|      |                                                                                                                                                                                      |           |   |     |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|-----|
|      | type".                                                                                                                                                                               |           |   |     |
| 13.1 | Initializer lists shall not contain persistent side effects.                                                                                                                         | required  | - | yes |
| 13.2 | The value of an expression and its persistent side effects shall be the same under all permitted evaluation orders.                                                                  | required  | - | yes |
| 13.3 | A full expression containing an increment (++) or decrement (--) operator should have no other potential side effects other than that caused by the increment or decrement operator. | advisory  | - | no  |
| 13.4 | The result of an assignment operator should not be used.                                                                                                                             | advisory  | - | no  |
| 13.5 | The right hand operand of a logical && or    operator shall not contain persistent side effects.                                                                                     | required  | - | yes |
| 13.6 | The operand of the sizeof operator shall not contain any expression which has potential side effects.                                                                                | mandatory | - | yes |
| 14.1 | A loop counter shall not have essentially floating type.                                                                                                                             | required  | - | yes |
| 14.2 | A for loop shall be well-formed.                                                                                                                                                     | required  | - | yes |
| 14.3 | Controlling expressions shall not be invariant.                                                                                                                                      | required  | - | yes |
| 14.4 | The controlling expression of an if statement and the controlling expression of an iteration-statement shall have essentially Boolean type.                                          | required  | - | yes |
| 15.1 | The goto statement should not be used.                                                                                                                                               | advisory  | - | no  |
| 15.2 | The goto statement shall jump to a label declared later in the same function.                                                                                                        | required  | - | yes |
| 15.3 | Any label referenced by a goto statement shall be declared in the same block, or in any block enclosing the goto statement.                                                          | required  | - | yes |
| 15.4 | There should be no more than one break or goto statement used to terminate any iteration statement.                                                                                  | advisory  | - | no  |
| 15.5 | A function should have a single point of exit at the end.                                                                                                                            | advisory  | - | no  |
| 15.6 | The body of an iteration-statement or a selection-statement shall be a compound-statement.                                                                                           | required  | - | yes |
| 15.7 | All if ... else if constructs shall be terminated with an else statement.                                                                                                            | required  | - | yes |
| 16.1 | All switch statements shall be well-formed.                                                                                                                                          | required  | - | yes |
| 16.2 | A switch label shall only be used when the most closely-enclosing compound statement is the body of a switch statement.                                                              | required  | - | yes |
| 16.3 | An unconditional break statement shall terminate every switch-clause.                                                                                                                | required  | - | yes |
| 16.4 | Every switch statement shall have a default label.                                                                                                                                   | required  | - | yes |
| 16.5 | A default label shall appear as either the first or the last switch label of a switch statement.                                                                                     | required  | - | yes |
| 16.6 | Every switch statement shall have at least two switch-clauses.                                                                                                                       | required  | - | yes |

|      |                                                                                                                                                 |           |   |     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|-----|
| 16.7 | A switch-expression shall not have essentially Boolean type.                                                                                    | required  | - | yes |
| 17.1 | The features of <stdarg.h> shall not be used.                                                                                                   | required  | - | yes |
| 17.2 | Functions shall not call themselves, either directly or indirectly.                                                                             | required  | - | yes |
| 17.3 | A function shall not be declared implicitly.                                                                                                    | mandatory | - | yes |
| 17.4 | All exit paths from a function with non-void return type shall have an explicit return statement with an expression.                            | mandatory | - | yes |
| 17.5 | The function argument corresponding to a parameter declared to have an array type shall have an appropriate number of elements.                 | advisory  | - | no  |
| 17.6 | The declaration of an array parameter shall not contain the static keyword between the [ ].                                                     | mandatory | - | yes |
| 17.7 | The value returned by a function having non-void return type shall be used.                                                                     | required  | - | yes |
| 17.8 | A function parameter should not be modified.                                                                                                    | advisory  | - | no  |
| 18.1 | A pointer resulting from arithmetic on a pointer operand shall address an element of the same array as that pointer operand.                    | required  | - | yes |
| 18.2 | Subtraction between pointers shall only be applied to pointers that address elements of the same array.                                         | required  | - | yes |
| 18.3 | The relational operators >, >=, < and <= shall not be applied to objects of pointer type except where they point into the same object.          | required  | - | yes |
| 18.4 | The +, -, += and -= operators should not be applied to an expression of pointer type.                                                           | advisory  | - | no  |
| 18.5 | Declarations should contain no more than two levels of pointer nesting.                                                                         | advisory  | - | no  |
| 18.6 | The address of an object with automatic storage shall not be copied to another object that persists after the first object has ceased to exist. | required  | - | yes |
| 18.7 | Flexible array members shall not be declared.                                                                                                   | required  | - | yes |
| 18.8 | Variable-length array types shall not be used.                                                                                                  | required  | - | yes |
| 19.1 | An object shall not be assigned or copied to an overlapping object.                                                                             | mandatory | - | yes |
| 19.2 | The union keyword should not be used.                                                                                                           | advisory  | - | no  |
| 20.1 | #include directives should only be preceded by preprocessor directives or comments.                                                             | advisory  | - | no  |
| 20.2 | The ', " or \ characters and the /* or // character sequences shall not occur in a header file name.                                            | required  | - | yes |
| 20.3 | The #include directive shall be followed by either a <filename> or "filename"sequence.                                                          | required  | - | yes |
| 20.4 | A macro shall not be defined with the same name as a keyword.                                                                                   | required  | - | yes |

|       |                                                                                                                                                                           |           |   |     |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|-----|
| 20.5  | #undef should not be used.                                                                                                                                                | advisory  | - | no  |
| 20.6  | Tokens that look like a preprocessing directive shall not occur within a macro argument.                                                                                  | required  | - | yes |
| 20.7  | Expressions resulting from the expansion of macro parameters shall be enclosed in parentheses.                                                                            | required  | - | yes |
| 20.8  | The controlling expression of a #if or #elif preprocessing directive shall evaluate to 0 or 1.                                                                            | required  | - | yes |
| 20.9  | All identifiers used in the controlling expression of #if or #elif preprocessing directives shall be #define'd before evaluation.                                         | required  | - | yes |
| 20.10 | The # and ## preprocessor operators should not be used.                                                                                                                   | advisory  | - | no  |
| 20.11 | A macro parameter immediately following a # operator shall not immediately be followed by a ## operator.                                                                  | required  | - | yes |
| 20.12 | A macro parameter used as an operand to the # or ## operators, which is itself subject to further macro replacement, shall only be used as an operand to these operators. | required  | - | yes |
| 20.13 | A line whose first token is # shall be a valid preprocessing directive.                                                                                                   | required  | - | yes |
| 20.14 | All #else, #elif and #endif preprocessor directives shall reside in the same file as the #if, #ifdef or #ifndef directive to which they are related.                      | required  | - | yes |
| 21.1  | #define and #undef shall not be used on a reserved identifier or reserved macro name.                                                                                     | required  | - | yes |
| 21.2  | A reserved identifier or macro name shall not be declared.                                                                                                                | required  | - | yes |
| 21.3  | The memory allocation and deallocation functions of <stdlib.h> shall not be used.                                                                                         | required  | - | yes |
| 21.4  | The standard header file <setjmp.h> shall not be used.                                                                                                                    | required  | - | yes |
| 21.5  | The standard header file <signal.h> shall not be used.                                                                                                                    | required  | - | yes |
| 21.6  | The Standard Library input/output functions shall not be used.                                                                                                            | required  | - | yes |
| 21.7  | The atof, atoi, atol, and atoll functions of <stdlib.h> shall not be used.                                                                                                | required  | - | yes |
| 21.8  | The library functions abort, exit and system of <stdlib.h> shall not be used.                                                                                             | required  | - | yes |
| 21.9  | The library functions bsearch and qsort of <stdlib.h> shall not be used.                                                                                                  | required  | - | yes |
| 21.10 | The Standard Library time and date functions shall not be used.                                                                                                           | required  | - | yes |
| 21.11 | The standard header file <tgmath.h> shall not be used.                                                                                                                    | required  | - | yes |
| 21.12 | The exception handling features of <fenv.h> should not be used.                                                                                                           | advisory  | - | no  |
| 21.13 | Any value passed to a function in <ctype.h> shall be representable as an unsigned char or be the value EOF.                                                               | mandatory | - | yes |
| 21.14 | The Standard Library function memcmp shall not be used to compare null terminated strings.                                                                                | required  | - | yes |

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|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---|-----|
| 21.15 | The pointer arguments to the Standard Library functions memcpy, memmove and memcmp shall be pointers to qualified or unqualified versions of compatible types.                                                         | required  | - | yes |
| 21.16 | The pointer arguments to the Standard Library function memcmp shall point to either a pointer type, an essentially signed type, an essentially unsigned type, an essentially Boolean type or an essentially enum type. | required  | - | yes |
| 21.17 | Use of the string handling functions from <string.h> shall not result in accesses beyond the bounds of the objects referenced by their pointer parameters.                                                             | mandatory | - | yes |
| 21.18 | The size_t argument passed to any function in <string.h> shall have an appropriate value.                                                                                                                              | mandatory | - | yes |
| 21.19 | The pointers returned by the Standard Library functions localeconv, getenv, setlocale or, strerror shall only be used as if they have pointer to const-qualified type.                                                 | mandatory | - | yes |
| 21.20 | The pointer returned by the Standard Library functions asctime, ctime, gmtime, localtime, localeconv, getenv, setlocale or strerror shall not be used following a subsequent call to the same function.                | mandatory | - | yes |
| 22.1  | All resources obtained dynamically by means of Standard Library functions shall be explicitly released.                                                                                                                | required  | - | yes |
| 22.2  | A block of memory shall only be freed if it was allocated by means of a Standard Library function.                                                                                                                     | mandatory | - | yes |
| 22.3  | The same file shall not be open for read and write access at the same time on different streams.                                                                                                                       | required  | - | yes |
| 22.4  | There shall be no attempt to write to a stream which has been opened as read-only.                                                                                                                                     | mandatory | - | yes |
| 22.5  | A pointer to a FILE object shall not be dereferenced.                                                                                                                                                                  | mandatory | - | yes |
| 22.6  | The value of a pointer to a FILE shall not be used after the associated stream has been closed.                                                                                                                        | mandatory | - | yes |
| 22.7  | The macro EOF shall only be compared with the unmodified return value from any Standard Library function capable of returning EOF.                                                                                     | required  | - | yes |
| 22.8  | The value of errno shall be set to zero prior to a call to an errno-setting-function.                                                                                                                                  | required  | - | yes |
| 22.9  | The value of errno shall be tested against zero after calling an errno-setting-function.                                                                                                                               | required  | - | yes |
| 22.10 | The value of errno shall only be tested when the last function to be called was an errno-setting-function.                                                                                                             | required  | - | yes |

# Chapter 5. Appendix 2 - Definitions

Table 5.1. Abbreviations

| Abbreviation | Definition    |
|--------------|---------------|
| NA           | Not Available |