

Defect Type	ALL	UB	NOT UB	PASSED	UB-defect	Cerberus
						Percentage UB detected
Static memory	67	67	0	67	66	99%
Dynamic memory	87	82	5	81	81	99%
Numerical	102	56	46	55	55	98%
Resource management	95	61	34	54	54	89%
Pointer-related	82	72	10	82	72	100%
Inappropriate code	64	0	64	0	0	100%
Misc	29	28	1	16	16	57%
<b>Total</b>	<b>526</b>	<b>366</b>	<b>160</b>	<b>355</b>	<b>344</b>	

ALL UNDEFINED  
 NOT UNDEFINED  
 OUT OF SCOPE  
 NOT SUPPORTED : Concurrency, function pointers, floatings, multiple translation units

		# of tests		# of success		success rate		# of Subtype	Defect Subtype	Defect Type	Actually UB ?	Any random ?	Any in
TOTAL	TOTAL VALID	UB	TOTAL	UB	TOTAL	UB							
17	17	17	17	17	100.00%	100.00%	1	Bit shift bigger than integral type or negative	Numerical	bit_shift	Yes (all)		
32	32	32	32	32	100.00%	100.00%	2	Dynamic buffer overrun	Dynamic memory	buffer_overrun_dynamic	Yes (all)	{13}	
39	39	39	38	38	97.44%	97.44%	3	Dynamic buffer underrun	Dynamic memory	buffer_underrun_dynamic	Yes (all)		
2	2	2	2	2	100.00%	100.00%	4	Comparison NULL with function pointer	Pointer related	cmp_funcaddr	Yes (all)		
10	10	0	0	0	-	-	5	Contradict conditions	Inappropriate code	conflicting_cond	No (all)	{1-10}	
19	19	0	0	0	-	-	6	Integer precision lost because of cast	Numerical	data_lost	No (all)	{12}	10
25	21	15	15	15	71.43%	100.00%	7	Data overflow	Numerical	data_overflow	Yes (except {1,2,5,6,7,8})	{15}	
12	10	8	8	8	80.00%	100.00%	8	Data underflow	Numerical	data_underflow	Yes (except {2,9})		
13	13	0	0	0	-	-	9	Dead code	Inappropriate code	dead_code	No (all)		
5	0	0	0	0	-	-	10	Dead lock	Concurrency	dead_lock			
3	3	0	0	0	-	-	11	Deletion of data structure sentinel	Dynamic memory	deletion_of_data_structure_sentinel	No (all)		
12	12	12	11	11	91.67%	91.67%	12	Double free	Resource management	double_free	Yes (all)	{4}	
4	0	0	0	0	-	-	13	Double lock	Concurrency	double_lock			
6	0	0	0	0	-	-	14	Double release	Concurrency	double_release			
9	9	9	0	0	0.00%	0.00%	15	Unintentional endless loop	Misc	endless_loop	Yes (all)		
16	16	16	16	16	100.00%	100.00%	16	Free non dynamically allocated memory	Resource management	free_nondynamic_allocated_memory	Yes (all)		
14	14	5	14	5	100.00%	100.00%	17	Free NULL pointer	Pointer related	free_null_pointer	Not (except {5,6,8,9,10})	{11}	
15	15	15	15	15	100.00%	100.00%	18	Bad cast of a function pointer	Pointer related	func_pointer	Yes (strict ISO)		
16	16	0	0	0	-	-	19	Return value of function never checked	Inappropriate code	function_return_value_unchecked			
4	0	0	0	0	-	-	20	Improper error handling	Inappropriate code	improper_error_handling			
4	4	0	0	0	-	-	21	Improper termination of block	Inappropriate code	improper_termination_of_block			
1	1	0	0	0	-	-	22	Useless assignment	Misc	insign_code		{1}	
6	0	0	0	0	-	-	23	Bad extern type for global variable	Misc	invalid_extern			
17	17	17	17	17	100.00%	100.00%	24	Invalid memory access to already freed area	Resource management	invalid_memory_access	Yes (all)		
11	11	11	11	11	100.00%	100.00%	25	Assign small buffer for structure	Dynamic memory	littlemem_st	Yes (all)		
1	0	0	0	0	-	-	26	Live lock	Concurrency	lock_never_unlock			
16	16	6	0	0	-	-	27	Locked but never unlock	Concurrency	lock_never_unlock			
18	18	0	0	0	-	-	28	Memory allocation failure	Resource management	memory_allocation_failure	Yes (except {5,6,8,9,10,12})	{5}	
4	4	4	1	1	25.00%	25.00%	29	Memory leakage	Resource management	memory_leak	No (all)	{7}	
17	17	16	17	16	100.00%	100.00%	30	Non void function does not return value	Misc	not_return	Yes (all)	{1-4}	
54	54	54	54	53	100.00%	98.15%	31	Dereferencing a NULL pointer	Pointer related	null_pointer	Yes (except {16})	{6}	
2	2	0	0	0	-	-	32	Static buffer overrun	Static memory	overrun_st		{14,33}	
29	0	0	0	0	-	-	33	Memory copy at overlapping areas	Dynamic memory	ow_memcopy			
2	2	2	2	2	100.00%	100.00%	34	Power related errors	Numerical	pow_related_errors	-		
8	0	0	0	0	-	-	35	Incorrect pointer arithmetic	Pointer related	ptr_subtraction	Yes (all)		
14	14	0	0	0	-	-	36	Race condition	Concurrency	race_condition			
3	0	0	0	0	-	-	37	Redundant conditions	Inappropriate code	redundant_cond	No (all)	{1-7,9-14}	
2	2	0	0	0	-	-	38	Return of a pointer to a local variable	Resource management	return_local			
19	19	0	0	0	-	-	39	Integer sign lost because of unsigned cast	Numerical	sign_loss		{12}	
3	0	0	0	0	-	-	40	Long lock	Concurrency	sleep_lock			
6	0	0	0	0	-	-	41	Cross thread stack access	Stack related	st_cross_thread_access			
7	0	0	0	0	-	-	42	Stack overflow	Stack related	st_overflow	-		
7	0	0	0	0	-	-	43	Stack underrun	Stack related	st_underrun	-		
13	13	13	13	13	100.00%	100.00%	44	Static buffer underrun	Static memory	underrun_st	Yes (all)		
15	14	10	10	10	71.43%	100.00%	45	Uninitialized memory access	Resource management	unit_memory_access		{14}	
16	14	14	14	14	100.00%	100.00%	46	Uninitialized pointer	Pointer related	unit_pointer	Yes (except {4,8,10,11,13,14,16})		
15	15	15	15	15	100.00%	100.00%	47	Uninitialized variable	Misc	unit_var	Yes (strict ISO)		
8	8	0	0	0	-	-	48	Unlock without lock	Concurrency	unlock_without_lock			
7	7	0	0	0	-	-	49	Unused variable	Inappropriate code	unused_var	No (all)		
18	18	18	18	18	100.00%	100.00%	50	Wrong arguments passed to a function pointer	Pointer related	wrong_arguments_func_pointer	Yes (strict ISO)		
16	16	16	15	15	93.75%		51	Division by zero	Numerical	zero_division		{10}	

CERBERUS	wo Defects status on Limbus
OK (all)	OK (all)
OK (all)	OK (all)
OK (except 39 (taking too long))	
OK (all)	OK (all)
THEY ARE NOT UB	OK (all)
THEY ARE NOT UB	OK (all)
THEY ARE NOT UB	OK (all)
Partial (not {1,2,5,6,7,8} because not UB, not {9,10} because bit-fields, not {24,25} because floats)	OK (all)
Partial (not {2,9} because not UB, not {7,8} because floats)	OK (all)
THEY ARE NOT UB	OK (all)
THEY ARE NOT UB	OK (all)
Partial (not {4})	OK (all)
NO (all)	OK (all)
OK (all)	OK (all)
OK (except 7, but that seems wrong?) (with forbid nullptr free)	OK (all)
OK (all)	OK (all)
THEY ARE NOT UB	OK (all)
WERE IS THIS FILE ? V: THIS IS C++	???
THEY ARE NOT UB	OK (all)
THEY ARE NOT UB	OK (all)
OK (all)	OK (all)
OK (all)	OK (all)
These are not testing Ubs, some have unrelated UBS	OK (all)
THEY ARE NOT UB	OK (all)
Partial (only {1}, they others all use rand())	OK (all)
Partial (not {16} because it's not UB)	OK (all)
OK (except 044, because ++ doesn't yet check out-of-bound in strict_ptr_arith switch)	OK (all)
THEY ARE NOT UB	OK (all)
OK (all) (with strict_ptr_arith)	OK (all)
THEY ARE NOT UB	OK (all)
Does find Undefined behaviours, but not the (non UB) errors expected	OK (all)
THEY ARE NOT UB	OK (all)
OK (all)	OK (all)
OK (all)	OK (all)
Partial (not {8} because bitfield, not {12,13,14,15}) (with strict_reads)	OK (all)
Partial (not {13,14}) (with strict_reads)	OK (all)
OK (all) (with strict_reads)	OK (all)
THEY ARE NOT UB	OK (all)
OK (all)	OK (all)
OK (except 010 failing (rand))	OK (all)

PROBLEMATIC ONES

filename	#	Comment
bit_shift	9	OK (but fyi, it uses rand())
buffer_underrun_dynamic	13	OK (RAND)
buffer_underrun_dynamic	31	OK (but not the location they want)
buffer_underrun_dynamic	33	OK (but not the location they want)
buffer_underrun_dynamic	35	OK (but not the location they want)
buffer_underrun_dynamic	39	TOO LONG?
data_overflow	11	OK (but not the location they want, and THEY are wrong)
data_overflow	15	OK (RAND)
data_overflow	24	DIDN'T FAIL (FLOATS)
data_overflow	25	DIDN'T FAIL (FLOATS)
data_underflow	2	DIDN'T FAIL (NOT UB)
data_underflow	7	DIDN'T FAIL (FLOATS)
data_underflow	8	DIDN'T FAIL (FLOATS)
data_underflow	9	DIDN'T FAIL (NOT UB)
double_free	4	DIDN'T FAIL (RAND)
endless_loop	1	THIS HAS AN ENDLESS LOOP
endless_loop	2	THIS HAS AN ENDLESS LOOP
endless_loop	3	THIS HAS AN ENDLESS LOOP
endless_loop	4	THIS HAS AN ENDLESS LOOP
endless_loop	5	THIS HAS AN ENDLESS LOOP
endless_loop	6	THIS HAS AN ENDLESS LOOP
endless_loop	7	THIS HAS AN ENDLESS LOOP
endless_loop	8	THIS HAS AN ENDLESS LOOP
endless_loop	9	THIS HAS AN ENDLESS LOOP
free_null_pointer	1	DIDN'T FAIL
free_null_pointer	2	DIDN'T FAIL
free_null_pointer	3	DIDN'T FAIL
free_null_pointer	4	DIDN'T FAIL
free_null_pointer	5	Failure("TODO(shift a null pointer should be undefined behaviour)")
free_null_pointer	6	Failure("TODO(shift a null pointer should be undefined behaviour)")
free_null_pointer	7	DIDN'T FAIL
free_null_pointer	8	Failure("TODO(shift a null pointer should be undefined behaviour)")
free_null_pointer	9	Failure("TODO(shift a null pointer should be undefined behaviour)")
free_null_pointer	10	Failure("TODO(shift a null pointer should be undefined behaviour)")
free_null_pointer	11	failed bytes of int64(unsigned), i=-1, nbits= 64, [0... 18446744073709551615] (RAND)
free_null_pointer	12	Failure("TODO(shift a null pointer should be undefined behaviour)")
free_null_pointer	13	Failure("TODO(shift a null pointer should be undefined behaviour)")
invalid_memory_access	3	DIDN'T FAIL
invalid_memory_access	15	DIDN'T FAIL
memory_allocation_failure	1	???
memory_allocation_failure	2	DIDN'T FAIL
memory_allocation_failure	3	DIDN'T FAIL
memory_allocation_failure	4	DIDN'T FAIL
memory_allocation_failure	5	DIDN'T FAIL (RAND)
memory_allocation_failure	6	DIDN'T FAIL
memory_allocation_failure	7	GIVES WRONG LOCATION, BUT TESTS LOOKS WRONG AND CERB SEEMS CORRECT
memory_allocation_failure	8	DIDN'T FAIL
memory_allocation_failure	9	???
memory_allocation_failure	10	???
memory_allocation_failure	11	DIDN'T FAIL
memory_allocation_failure	12	???
memory_allocation_failure	13	DIDN'T FAIL
memory_allocation_failure	14	???
memory_allocation_failure	15	DIDN'T FAIL
memory_allocation_failure	16	DIDN'T FAIL
not_return	1	OK (gives different loc, but it's OK) (RAND)
not_return	2	DIDN'T FAIL (RAND)
not_return	3	DIDN'T FAIL (RAND)
not_return	4	DIDN'T FAIL (RAND)
null_pointer	6	OK (RAND)
null_pointer	12	Failure("TODO(shift a null pointer should be undefined behaviour)")
null_pointer	15	Failure("TODO(shift a null pointer should be undefined behaviour)")
null_pointer	16	DIDN'T FAIL
null_pointer	17	Failure("TODO(shift a null pointer should be undefined behaviour)")
overrun_st	14	OK (RAND)
overrun_st	33	OK (RAND)
overrun_st	44	DIFFERENT LOCATION (CERB REPORTS THE DEREFER AS ERROR, need switch strict_pointer_arith to support ++)