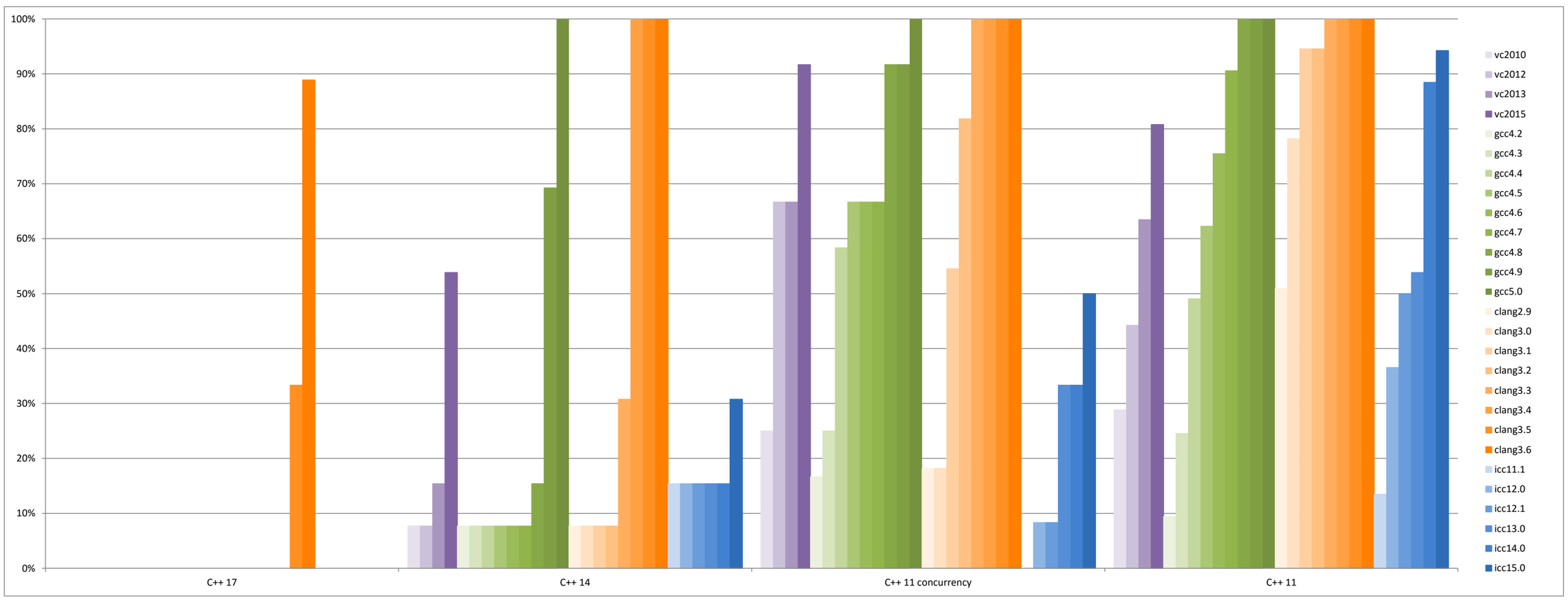
C++ Compiler Matrix

Available C++ functionnalities by compilers

January 2015, G-Truc Creation

	Visual C++				GCC									Clang									ICC					
Version	vc2010	vc2012	vc2013	vc2015	gcc4.2	gcc4.3	gcc4.4	gcc4.5	gcc4.6	gcc4.7	gcc4.8	gcc4.9	gcc5.0	clang2.9	clang2.9	clang3.0	clang3.1	clang3.2	clang3.3	clang3.4	clang3.5	clang3.6	icc11.1	icc12.0	icc12.1	icc13.0	icc14.0	icc15.0
C++ 17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	89%	0%	0%	0%	0%	0%	0%
C++ 14	8%	8%	15%	54%	8%	8%	8%	8%	8%	8%	15%	69%	100%	8%	8%	8%	8%	8%	31%	100%	100%	100%	15%	15%	15%	15%	15%	31%
C++ 11 concurrency	25%	67%	67%	92%	17%	25%	58%	67%	67%	67%	92%	92%	100%	0%	18%	18%	55%	82%	100%	100%	100%	100%	0%	8%	8%	33%	33%	50%
C++ 11	29%	44%	63%	81%	9%	25%	49%	62%	75%	91%	100%	100%	100%	4%	51%	78%	95%	95%	100%	100%	100%	100%	13%	37%	50%	54%	88%	94%



Nomenclature:

Supported

Not supported

N/A don't know

C++17	2010	2012	2013	2015	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	11.1	12.0	12.1	13.0	14.0	15.0
N3928: static_assert with no message	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X
N4086: Disabling trigraph expansion by default	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X
N4051: typename in a template template parameter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X
N3922: New auto rules for direct-list-initialization	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
N4295: Fold expressions	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X
N4267: u8 character literals	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X
N4230: Nested namespace definition	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X
N4266: Attributes for namespaces and enumerators	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X
N4268: Allow constant evaluation for all non-type template arguments	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X
Support	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	89%	0%	0%	0%	0%	0%	0%

C++14	2010	2012	2013	2015	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	11.1	12.0	12.1	13.0	14.0	15.0
N3323: Tweak to certain C++ contextual conversions	X	X	V	V	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
N3472: Binary literals	X	X	X	V	X	X	X	X	X	X	X	V	V	X	X	X	X	X	V	V	V	V	V	V	V	V	V	V
N3638: decltype(auto)	X	X	X	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	X	X	X	X
N3638: Return type deduction for normal functions	X	X	X	V	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V
N3648: Initialized lambda captures	X	X	X	V	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V
N3649: Generic lambdas	X	X	X	V	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
N3651: Variable templates	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
N3652: Relaxing requirements on constexpr functions	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
N3653: Member initializers and aggregates	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	V	V	V	V	X	X	X	X	X	X
N3664: Clarifying memory allocation	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N3760: [[deprecated]] attribute	X	X	X	X	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
N3781: Single quotation mark as digit separator	X	X	X	X	X	X	X	X	X	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
N3778: C++ Sized Deallocation	X	X	X	X	X	X	X	X	X	X	X	X	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	X
Support	8%	8%	15%	54%	8%	8%	8%	8%	8%	8%	15%	69%	100%	8%	8%	8%	8%	8%	31%	100%	100%	100%	15%	15%	15%	15%	15%	31%

C++11 concurrency	2010	2012	2013	2015	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	11.1	12.0	12.1	13.0	14.0	15.0
N2239: Sequence points	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X	X	V	V	V	V	X	X	X	X	X	V
N2427: Atomic operations	X	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	V	V	V
N2748: Strong Compare and Exchange	X	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	V	V	V
N2752: Bidirectional Fences	X	V	V	V	X	X	X	X	X	X	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	V	V	V
N2429: Memory model	V	V	V	V	X	X	X	X	X	X	X	X	V	X	X	X	X	V	V	V	V	V	X	X	X	X	X	X
N2664: Data-dependency ordering: atomics and memory model	X	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V	V	V	V	X	X	X	X	X	X
N2782: Data-dependency ordering: function annotation	X	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V	V	V	V	X	X	X	X	X	V
N2179: Propagating exceptions	V	V	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2440: Abandoning a process and at_quick_exit	X	X	X	V	X	X	X	X	X	X	V	V	V	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	X	X	X
N2547: Allow atomics use in signal handlers	X	X	X	X	V	V	V	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	X	X
N2659: Thread-local storage	X	X	X	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	X	X	X	X
N2660: Dynamic initialization and destruction with concurrency	X	X	X	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	X	X	X	X
Support	25%	67%	67%	92%	17%	25%	58%	67%	67%	67%	92%	92%	100%	0%	18%	18%	55%	82%	100%	100%	100%	100%	0%	8%	8%	33%	33%	50%

C++11	2010	2012	2013	2015	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	11.1	12.0	12.1	13.0	14.0	15.0
N2118: Rvalue references	V	V	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2439: Rvalue references for *this	X	X	X	V	X	X	X	X	X	X	V	V	V	X	V	V	V	V	V	V	V	V	X	X	X	X	V	V
N1610: Initialization of class objects by rvalues	V	V	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N2756: Non-static data member initializers	X	X	V	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2242: Variadic templates	X	X	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	V	V	V	V
N2555: Extending variadic template template parameters	X	X	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	V	V	V	V
N2672: Initializer lists	X	X	V	V	X	X	V	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	V	V
N1720: Static assertions	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N1984: auto-typed variables	V	V	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N1737: Multi-declarator auto	N/A	N/A	N/A	N/A	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2546: Removal of auto as a storage-class specifier	V	V	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2541: New function declarator syntax	V	V	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2927: Lambda expressions	X	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	V	V	V	V	V
N2343: Declared type of an expression	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N3276: Incomplete return types	X	X	V	V	X	X	X	X	X	X	V	V	V	X	X	X	V	V	V	V	V	V	X	V	V	V	V	V
N1757: Right angle brackets	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
DR226: Default template arguments for function templates	N/A	N/A	N/A	N/A	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	V	V	V	V
DR339: Solving the SFINAE problem for expressions	N/A	N/A	N/A	N/A	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	N/A	N/A	N/A	N/A	N/A	N/A
N2258: Alias templates	X	X	X	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	V	V	V	V
N1987: Extern templates	V	V	V	V	V	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N2431: Null pointer constant	V	V	V	V	X	X	X	X	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	V	V	V	V
N2347: Strongly-typed enums	X	V	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	X	X	V	V
N2764/DR1206: Forward declarations for enums	X	V	V	V	X	X	X	X	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	V	V
N2761: Standardized attribute syntax	X	X	X	X	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V
N2235: Generalized constant expressions	X	X	X	X	X	X	X	X	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	V	V
N2341: Alignment support	X	X	X	V	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	X	X	X	V
N1627: Conditionally-support behavior	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	V	V	V	V	V	V	V	V	N/A	N/A	N/A	N/A	N/A	N/A
N1727: Changing undefined behavior into diagnosable errors	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	V	V	V	V	V	V	V	V	N/A	N/A	N/A	N/A	N/A	N/A
N1986: Delegating constructors	X	X	V	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2540: Inheriting constructors	X	X	X	X	X	X	X	X	X	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	X	X	X	V
N2437: Explicit conversion operators	X	X	V	V	X	X	X	V	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	V	V	V
N2249: New character types	X	X	X	X	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	X	X	V	V
N2442: Unicode string literals	X	X	X	X	X	X	X	V	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2442: Raw string literals	X	X	V	V	X	X	X	V	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2170: Universal character names in literals	X	X	X	X	X	X	X	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	V	V	V	V
N2765: User-defined literals	X	X	X	X	X	X	X	X	X	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	X	V
N2342: Standard Layout Types	X	V	V	V	X	X	X	V	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2346: Defaulted functions	X	X	V	V	X	X	V	V	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V
N2346: Deleted functions	X	X	V	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N1791: Extended friend declarations	V	V	V	V	X	X	X	X	X	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2253/DR850: Extending sizeof	X	X	X	V	X	X	V	V	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	V	V
N2535: Inline namespaces	X	X	X	V	X	X	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	X	X	X	V	V
N2544: Unrestricted unions	X	X	X	V	X	X	X	X	V	V	V	V	V	X	X	X	V	V	V	V	V	V	X	X	X	X	X	X
N2657: Local and unnamed types as template arguments	V	V	V	V	X	X	X	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V
N2930: Range-based for	X	V	V	V	X	X	X	X	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	V	V	V
N2928: Explicit virtual overrides	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N3206: Override control: Eliminating Attributes	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N3272: override and final	X	V	V	V	X	X	X	X	X	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2670: Minimal support for garbage collection and reachability-based	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X	X	X
N3050: Allowing move constructors to throw [noexcept]	X	X	X	V	X	X	X	X	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N3053: Defining move special member functions	X	X	X	V	X	X	X	X	V	V	V	V	V	X	X	V	V	V	V	V	V	V	X	X	X	X	V	V
N2340: C99 __func__ predefined identifier	X	X	X	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N1653: C99 preprocessor	X	X	X	X	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N1811: C99 long long	V	V	V	V	X	V	V	V	V	V	V	V	V	X	V	V	V	V	V	V	V	V	V	V	V	V	V	V
N1988: C99 Extended integral types	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	X	X	X	X	X	X
Support	29%	44%	63%	81%	9%	25%	49%	62%	75%	91%	100%	100%	100%	4%	51%	78%	95%	95%	100%	100%	100%	100%	13%	37%	50%	54%	88%	94%