Glossary

external linkage – linkage that allows a name to refer to the same entity across translation units; see also internal linkage.

factory function – one whose purpose is to construct, initialize, and return an object, often by value. *Rvalue* References (778), User-Defined Literals (836), Variadic Templates (929)

fallible – implies, for a given function, that it might fail to satisfy its postconditions even when its preconditions are met; see also fallible implementation. **noexcept** Specifier (1118)

fallible implementation – one that might fail to meet its contract, i.e., one that is fallible. **noexcept** Specifier (1120)

false sharing – a pessimizing storage phenomenon where unrelated objects that happen to wind up on the same cache line in memory result in potentially severe runtime performance degradation when multiple threads attempt to access those respective objects concurrently; note that cache line access on typical hardware is automatically synchronized to avoid concurrent access from execution threads. **alignas** (174)

fault tolerant – implies, for a given distributed system (but never a function, component, or program), that failures are reliably handled (e.g., through graceful degradation rather than catastrophic failure) and often approximated through significant redundancy of interconnected hardware, design, and implementation so as to avoid any single point of failure. **noexcept** Specifier (1123)

fence – a memory barrier; see also memory fence instruction. Function **static** '11 (82)

file extension – the part of a filename after a final ., commonly used in modern operating systems to identify distinct file types. For example, typical standard practice for C++ developers is to use .h or .hpp for *header* files and .cpp, .cxx, or .cc for *implementation* (a.k.a. *source*) files. Opaque **enum**s (667)

floating-point literal – a literal denoting a floating-point value — e.g., 5.0 (**double**), 5.0f (**float**), or 5.0L (**long double**). User-Defined Literals (837)

floating-point-to-integer conversion – an implicit (truncating) conversion defined from floating-point types to integral types. User-Defined Literals (843)

floating-point type – either **float**, **double**, or **long double**.

flow of control – the execution path (i.e., sequence of operations executed) within a program; e.g., a file-scope static variable is initialized the first time the flow of control passes through its definition. Function **static** '11 (68)

footprint – the contiguous block of sufficiently aligned memory, as quantified by the **sizeof** and **alignof** operators (see Section 2.1."**alignof**" on page 184), in which any non**static** data members, base-class objects, vtable pointers, virtual-base pointers, and padding bytes needed to achieve proper subobject alignment reside; note that an object's footprint is independent of any dynamically allocated memory that it might hold or own. **extern template** (357), Generalized PODs '11 (452), *Rvalue* References (734), **noexcept** Specifier (1114)

forward class declaration – a forward declaration of a **class**, **struct**, or **union**, often used in the header file of a component to increase insulation. Opaque **enum**s (675)

forward declaration – a nondefining declaration that resides ahead of its definition in the same translation unit (TU); typical use is (1) as an opaque declaration in a header file to facilitate consistent use across TUs and (2) to accommodate mutually dependent entities (e.g., within a single TU); see also local declaration. Opaque **enum**s (662)