

Intel(R) Fortran Compiler Help
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usage: ifort [options] file1 [file2 ...] [/link linker_options]

where options represents zero or more compiler options

fileN is a Fortran source (.f .for .ftn .f90 .fpp .i .i90),
assembly (.asm), object (.obj), static library (.lib), or
other linkable file

linker_options represents zero or more linker options

Notes

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1. Many FL32 options are supported; a warning is printed for unsupported options.
 2. Intel Fortran compiler options may be placed in your ifort.cfg file.

Compiler Option List

Performance

/O1 optimize for maximum speed, but disable some optimizations which increase code size for a small speed benefit: /Ob2gysi-

/O2 optimize for maximum speed (same as /Ox)

/O3 enable /O2 plus more aggressive optimizations that may not improve performance for all programs

/Ox enable maximum optimizations (DEFAULT): /Ob2gyti

/Od disable optimizations; useful for selective optimizations (i.e. /Od /Og)

/optimize:<val>

- 0 - disable optimization (same as /Od)
- 1 - optimize for maximum speed, but disable some optimizations which increase code size for a small speed benefit (same as /O1)
- 2 - same as 1, or /O1
- 3 - optimize for maximum speed (default) (same as /O2)
- 4 - same as 3, or /O2
- 5 - enable /optimize:3 plus more aggressive optimizations that may not improve performance for all programs (same as /O3)

/fast enable /QxP /O3 /Qipo /Qprec-div-

/Ob<n> control inline expansion:

- n=0 disable inlining (same as /inline:none)
- n=1 no inlining (unless /Qip specified)
- n=2 inline any function, at the compiler's discretion (same as /Qip or /inline:all)

/Og enable global optimizations

/Op[-] enable/disable better floating-point precision

/[no]fltconsistency specify that improved floating-point consistency should be used

/Os enable speed optimizations, but disable some optimizations which increase code size for small speed benefit (overrides /Ot)

/Ot enable speed optimizations (overrides /Os)

/Oy[-] enable/disable using EBP as general purpose register (no frame pointer)

/Qax<codes> generate code specialized for processors specified by <codes> while also generating generic IA-32 code. <codes> includes

one or more of the following characters:

- K Intel Pentium III and compatible Intel processors
- W Intel Pentium 4 and compatible Intel processors
- N Intel Pentium 4 and compatible Intel processors. Enables new optimizations in addition to Intel processor-specific optimizations
- P Intel Core(TM) Duo processors, Intel Core(TM) Solo processors, Intel Pentium 4 and compatible Intel processors with Streaming SIMD Extensions 3 (SSE3) instruction support
- B Intel Pentium M and compatible Intel processors

/Qx<codes> generate specialized code to run exclusively on processors indicated by <codes> as described above.

/tune:<keyword>

- pn1 - optimize for Pentium(R) processor
- pn2 - optimize for Pentium(R) Pro, Pentium(R) II, and Pentium(R) III processors
- pn3 - same as pn2
- pn4 - optimize for Pentium(R) 4 processor (DEFAULT)

/architecture:<keyword>

- pn1 - optimize for Pentium(R) processor
- pn2 - optimize for Pentium(R) Pro, Pentium(R) II, and Pentium(R) III processors
- pn3 - same as pn2
- pn4 - optimize for Pentium(R) 4 processor (DEFAULT)
- SSE - same as QxK
- SSE2 same as QxW

Advanced Performance

Enable and specify the scope of Interprocedural (IP) Optimizations:

/Qip enable single-file IP optimizations (within files, same as /Ob2)

/Qipo[n] enable multi-file IP optimizations (between files)

/Qipo-c generate a multi-file object file (ipo_out.obj)

/Qipo-S generate a multi-file assembly file (ipo_out.asm)

Modify the behavior of IP:

/Qip-no-inlining disable full and partial inlining (requires /Qip or /Qipo)

/Qip-no-pinlining disable partial inlining (requires /Qip or /Qipo)

/Qipo-separate create one object file for every source file (overrides /Qipo[n])

Other Advanced Performance Options:

/reentrancy:<keyword>

specify whether the threaded, reentrant run-time support should be used

Keywords: none (same as /noreentrancy), threaded

/noreentrancy don't use reentrant run-time support

/Qpad[-] enable/disable(DEFAULT) changing variable and array memory layout

/Qunroll[n] set maximum number of times to unroll loops. Omit n to use default heuristics. Use n=0 to disable loop unroller.

/unroll[:n] set maximum number of times to unroll loops. Omit n to use default heuristics. Use n=0 to disable loop unroller.

/Qprof-dir <d> specify directory for profiling output files (*.dyn and *.dpi)

/Qprof-file <f> specify file name for profiling summary file

/Qprof-gen instrument program for profiling

/Qprof-use enable use of profiling information during optimization

/Qprof-gen-sampling

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/Qfnsplit[-]      prepare code for use with profrun sample gathering tool
                  enable/disable function splitting (enabled with /Qprof-use)

/Qpc32           set internal FPU precision to 24 bit significand
/Qpc64           set internal FPU precision to 53 bit significand (DEFAULT)
/Qpc80           set internal FPU precision to 64 bit significand
/QIfist[-]       enable/disable(DEFAULT) fast float-to-int conversions
/Qrcd            same as /QIfist
/Qrct           set internal FPU rounding control to truncate
/rounding-mode:chopped
                  set internal FPU rounding control to truncate
/Qprec           improve floating-point precision (speed impact less than /Op)
/Qfp-port[-]     round fp results at assignments & casts (some speed impact)
/Qfpstkchk       enable fp stack checking after every function/procedure call
/Qprec-div[-]    improve precision of FP divides (some speed impact)
/Qprec-sqrt[-]   determine if certain square root optimizations are enabled

/Qscalar-rep[-]  enable(DEFAULT)/disable scalar replacement (requires /O3)
/Qvec-report[n]  control amount of vectorizer diagnostic information:
                  n=0    no diagnostic information
                  n=1    indicate vectorized loops (DEFAULT)
                  n=2    indicate vectorized/non-vectorized loops
                  n=3    indicate vectorized/non-vectorized loops and prohibiting
                          data dependence information
                  n=4    indicate non-vectorized loops
                  n=5    indicate non-vectorized loops and prohibiting data
                          dependence information

/Qsafe-cray-ptr  Cray pointers do not alias with other variables
/Qopt-report     generate an optimization report to stderr
/Qopt-report-file<file> specify the filename for the generated report
/Qopt-report-level[level] specify the level of report verbosity (min|med|max)
/Qopt-report-phase<name> specify the phase that reports are generated against
/Qopt-report-routine<name> reports on routines containing the given name
/Qopt-report-help display the optimization phases available for
                  reporting

/Qtcheck        generate instrumentation to detect multi-threading bugs
                  (requires Intel(R) Thread Checker; cannot be used with
                  compiler alone)
/Qtprofile       generate instrumentation to analyze multi-threading
                  performance (requires Intel(R) Thread Profiler; cannot
                  be used with compiler alone)
/Qopenmp         enable the compiler to generate multi-threaded code
                  based on the OpenMP directives
/Qopenmp-profile link with instrumented OpenMP runtime library to
                  generate OpenMP profiling information for use with the
                  OpenMP component of the VTune(TM) Performance Analyzer
/Qopenmp-stubs   enables the user to compile OpenMP programs in
                  sequential mode. The openmp directives are ignored and
                  a stub OpenMP library is linked (sequential)
/Qopenmp-report{0|1|2} control the OpenMP parallelizer diagnostic level
/fpe:{0|1|3}     specifies behavior on floating point exceptions

/Qparallel       enable the auto-parallelizer to generate multi-threaded
                  code for loops that can be safely executed in parallel
/Qpar-report{0|1|2|3} control the auto-parallelizer diagnostic level

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/Qpar-threshold[n]    set threshold for the auto-parallelization of loops
                      where n is an integer from 0 to 100
/Qansi-alias[-]      enable(DEFAULT)/disable use of ANSI aliasing rules in
                      optimizations; user asserts that the program adheres to
                      these rules
/Qcomplex-limited-range[-]
                      enable/disable(DEFAULT) the use of the basic
                      algebraic expansions of some complex arithmetic
                      operations. This can allow for some performance
                      improvement in programs which use a lot of complex
                      arithmetic at the loss of some exponent range.
/Qftz[-]              enable/disable flush denormal results to zero
/[no]recursive        compile all procedures for possible recursive execution
/Qssp                 enable software-based speculative pre-computation

/fp:<name>            enable <name> floating point model variation
  except[-]           - enable/disable floating point semantics
  fast[=1|2]          - enables more aggressive floating point optimizations
  precise             - allows value-safe optimizations
  source              - enables intermediates in source precision
  strict              - enables /fp:precise /fp:except, disables contractions, enables
                      property to allow for modification of the floating point
                      environment

/Qinline-min-size=<n>
                      set size limit for inlining small routines
/Qinline-min-size-
                      no size limit for inlining small routines
/Qinline-max-size=<n>
                      set size limit for inlining large routines
/Qinline-max-size-
                      no size limit for inlining large routines
/Qinline-max-total-size=<n>
                      maximum increase in size for inline function expansion
/Qinline-max-total-size-
                      no size limit for inline function expansion
/Qinline-max-per-routine=<n>
                      maximum number of inline instances in any function
/Qinline-max-per-routine-
                      no maximum number of inline instances in any function
/Qinline-max-per-compile=<n>
                      maximum number of inline instances in the current compilation
/Qinline-max-per-compile-
                      no maximum number of inline instances in the current compilation
/Qinline-factor=<n>
                      set inlining upper limits by n percentage
/Qinline-factor-
                      do not set inlining upper limits
/Qinline-forceinline
                      treat inline routines as forceinline

Output, Debug
-----
/c, /nolink, /compile-only
                      compile to object (.obj) only, do not link
/S
                      compile to assembly (.asm) only, do not link
/FA[cs]
                      produce assembly file with optional code or source
                      annotations

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/asmattr:<keyword>
    specify the information to generate in the assembleable
    listing file
    keywords: [no]source, [no]machine
/noasmattr
    generate default information in the assembleable listing
/Fa[file]
    name assembly file (or directory for multiple files; i.e.
    /FaMYDIR\)
/asmfile[:filename]
    specifies that an assembleable listing file should be
    generated
/Fo[file]
    name object file (or directory for multiple files; i.e.
    /FoMYDIR2\)
/object:<filename>
    specify the name of the object file
/Fe<file>
    name executable file or directory
/exe:<filename>
    specifies the name to be used for the built program (.EXE)
    or dynamic-link (.DLL) library
/map:<filename>
    specify that a link map file should be generated
/pdbfile[:filename]
    specify that debug related information should be generated
    to a program database file
/nopdbfile
    do not generate debug related information to a program
    database file
/RTCu
    report use of variable that was not initialized
/Zi, /Z7
    produce symbolic debug information in object file
/debug[:keyword]
    enable debug information and control output of enhanced
    debug information.
    keywords: all, full, minimal, none (same as /nodebug)
             inline-debug-info, variable-locations,
             semantic-stepping, extended
/nodebug
    do not enable debug information
/debug-parameters[:keyword]
    control output of debug information for PARAMETERS
    keywords: all, used, none (same as /nodebug-parameters)
/nodebug-parameters
    do not output debug information for PARAMETERS
/Quse-vcdebug
    emit debug information compatible with Visual C++ debugger;
    this disables emission of extended information used by
    Fortran debuggers
/Qinline-debug-info
    preserve the source position of inlined code instead of
    assigning the call-site source position to inlined code
/Qtrapuv
    trap uninitialized variables
/Qmap-opts
    enable option mapping tool

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Fortran Preprocessor

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/D<name>[{|#}<text>], /define:symbol[=value]
    Defines the symbol specified for use with conditional
    compilation metacommands. Optionally, the symbol can
    be defined to be an integer or string value
/nodefines
    specifies that any /D macros go to the preprocessor only, and not
    to the compiler too
/allow:nofpp_comments
    If a Fortran end-of-line comment is seen within a #define,
    treat it as part of the definition. Default is allow:fpp_comments
/E
    preprocess to stdout

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/EP      preprocess to stdout, omitting #line directives
/EP /P   preprocess to file, omitting #line directives
/P, /preprocess-only
         preprocess to file
/Qfpp[n], /[no]fpp
         run Fortran preprocessor on source files prior to compilation
         n=0   disable running the preprocessor, equivalent to nofpp
         n=1,2,3 run preprocessor
/Qcpp[n] same as /Qfpp[n]
/I<dir>, /[no]include:<dir>
         define the directories in which the compiler searches for INCLUDE
         and mod files
/module[:path]
         specify path where mod files should be placed and
         first location to look for mod files
/U<name>, /undefine:<name>
         remove predefined macro
/u
         remove all predefined macros
/X
         remove standard directories from include file search path

Language
-----
/4I{2|4|8}      set default KIND of integer and logical variables to 2, 4,
                or 8
/integer-size:<size>
                specifies the default size of integer and logical variables
                size: 16, 32, 64
/4R{8|16}      set default size of REAL to 8 or 16 bytes
/real-size:<size>
                specify the size of REAL and COMPLEX declarations, constants,
                functions, and intrinsics
                size: 32, 64, 128
/Qautodouble   same as /4R8
/double-size:<size>
                defines the size of DOUBLE PRECISION and DOUBLE COMPLEX
                declarations, constants, functions, and intrinsics
                size: 64, 128
/[no]fpconstant extends the precision of single precision constants assigned
                to double precision variables to double precision
/[no]intconstant use Compaq Fortran 77 semantics, rather than Compaq Fortran
                90, to determine kind of integer constants

/Qd-lines, /[no]d-lines
                compile debug statements (indicated by D in column 1)

/4{Y|N}f       enable/disable free format source
/[no]fixed, /FI specifies source files are in fixed format
/[no]free , /FR specifies source files are in free format
/4L{72|80|132} specify 72, 80, or 132 column lines for fixed form sources
/Qextend-source same as /4L132
/extend-source[:size]
                determines the column that ends the statement field of each
                source line in a fixed-format file. /extend-source default
                size is 132
                size: 72 (same as /noextend-source), 80, 132
/noextend-source source lines are expected to be 72 characters
/ccdefault:<keyword>
                specify default carriage control for units 6 and *

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        keywords: default, fortran, list, or none
/stand:<keyword> specifies level of conformance with ANSI standard to check
                  for
                  keywords: f90, f95, none
/Qpad-source, /[no]pad-source
                  make compiler acknowledge blanks at the end of a line
/Qdps[-], /[no]altparam
                  specify if alternate form of parameter constant declarations
                  (without parenthesis) is recognized

/1, /Qonetrip execute any DO loop at least once
/f66          allow extensions that enhance FORTRAN-66 compatibility
/[no]f77rtl   specify that the Fortran 77 specific run-time support should
              be used
/4{Y|N}a     enable/disable putting local variables on the run-time stack
/Qauto       same as /4Ya or /automatic
/Qauto-scalar make scalar local variables AUTOMATIC
/Qsave       save all variables (static allocation)
              (same as /noautomatic or /4Na, opposite of /Qauto)
/4{Y|N}d     enable/disable default IMPLICIT NONE
/Qcommon-args assume "by reference" subprogram arguments may alias one another
              (same as /assume:dummy_aliases)
/[Q]vms      enable VMS I/O statement extensions
/assume:<keyword>
              specify assumptions made by the optimizer and code generator
              keywords: none, [no]byterecl, [no]buffered_io,
                          [no]dummy_aliases, [no]minus0,
                          [no]protect_constants, [no]source_include,
                          [no]underscore, [no]writeable_strings
/Qzero[-]    enable/disable (DEFAULT) implicit initialization to zero of local
              scalar variables of intrinsic type INTEGER, REAL, COMPLEX,
              or LOGICAL that are not saved or initialized

/Qdyncom"blk1,blk2,..." make given common blocks dynamically-allocated

/4{Y|N}b     enable/disable extensive runtime error checking
/CB          runtime checks for out-of-bounds array subscript/substring refs
              Same as /check:bounds
/CU          runtime check for uninitialized variables
              same as /check:uninit
/check:<keyword>
              check run-time conditions
              keywords: all (same as /4Yb), none (same as /nocheck, /4Nb),
                          [no]arg_temp_created, [no]bounds, [no]format,
                          [no]output_conversion, [no]power, [no]uninit, [no]args
/nocheck     perform no extra run-time checks

/nbs         treat backslash as a normal character, not an escape character
/us          append an underscore to external subroutine names
/Qlowercase  change routine names to all lowercase (same as /names:lowercase)
/Quppercase  change routine names to all uppercase (DEFAULT)
              (same as /names:uppercase)
/names:<keyword>
              specify how source code identifiers and external names are
              interpreted
              keywords: as_is, lowercase, uppercase
/Gm          enable CVF and Powerstation calling convention compatibility
              (same as /iface:cvf)

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/Gz make STDCALL the default calling convention
 (same as /iface:stdcall)
 /iface:<keyword>
 specify the calling conventions to be used
 keywords: [no]mixed_str_len_arg, cref, cvf,
 default, stdcall, stdref
 /Zp[n] specify alignment constraint for structures (n=1,2,4,8,16)
 (same as /align:recNbyte)
 /[no]align analyze and reorder memory layout for variables and arrays
 /align:<keyword>
 specify how data items are aligned
 keywords: all (same as /align), none (same as /noalign),
 [no]commons, [no]dcommons, [no]records,
 rec1byte, rec2byte, rec4byte, rec8byte, rec16byte,
 [no]sequence
 /Zs, /syntax-only
 perform syntax check only

Compiler Diagnostics

 /cm same as /warn:nousage
 /w disable all warnings
 /Wn disable warnings (n=0) or show warnings
 (n=1, DEFAULT, same as /warn:general)
 /w90, /w95 suppress messages about use of non-standard Fortran-90/95
 /4{Y|N}s enable/disable issuing of errors for non-standard Fortran-90
 /warn:<keyword>
 specifies the level of warning messages issued.
 keywords: all, none (same as /nowarn),
 [no]alignments, [no]declarations, [no]errors,
 [no]general, [no]ignore_loc, [no]interfaces,
 [no]stderrs, [no]truncated_source, [no]uncalled,
 [no]unused, [no]usage
 /nowarn suppress all warning messages
 /WB turn a compile-time bounds check into a warning
 /[no]gen-interfaces
 create interface blocks for all routines in the file. Can then be
 checked with warn:interfaces
 /[no]traceback
 specify whether the compiler generates PC correlation data used
 to display a symbolic traceback rather than a hexadecimal traceback
 at runtime failure
 /error-limit:<size>
 specify the maximum number of error-level or fatal-level compiler
 errors allowed
 /noerror-limit
 set no maximum number on error-level or fatal-level error messages

Miscellaneous

 /?, /help print this help message
 /[no]logo [do not] display compiler version information
 /watch:<keyword>
 tells the driver to output processing information.
 keywords: all, none (same as /nowatch), [no]cmd, [no]source
 /nowatch suppress processing information output. (Default)
 /Tf<file> compile file as Fortran source
 /source:<filename>


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        specify that the file indicated should be processed as a Fortran
        source file
/extfor:<ext> specify extension of file to be recognized as a Fortran file
/extfpp:<ext> specify extension of file to be recognized as a preprocessor
        file
/convert:<keyword>
        specify the format of unformatted files containing numeric data
        keywords: big_endian, cray, ibm, little_endian, native, vaxd,
                vaxg
/fpscomp[:keyword]
        specify the level of compatibility to adhere to with Fortran
        PowerStation
        keywords: all, none (same as /nofpscomp),
                [no]filesfromcmd, [no]general, [no]ioformat,
                [no]ldio_spacing, [no]libs, [no]logicals
/nofpscomp no specific level of compatibility with Fortran Powerstation
/libdir[:keyword]
        control the library names that should be emitted into the object
        file
        Keywords: all, none (same as /nolibdir), [no]automatic, [no]user
/nolibdir no library names should be emitted into the object file
/inline[:keyword]
        Specifies the level of inline function expansion.
        keywords: all (same as /Ob2 /Ot), size (same as /Ob2 /Os)
                speed (same as /Ob2 /Ot), none or manual (same as /Ob0)
/Qglobal-hoist[-]
        enable(DEFAULT)/disable external globals are load safe
/Qoption,<str>,<opts>
        pass options <opts> to tool specified by <str>
/Qlocation,<str>,<dir>
        set <dir> as the location of tool specified by <str>
/bintext:<string>
        place the string specified into the object file and executable
/Qsox[-]
        enable/disable(DEFAULT) saving of compiler options and version
        in the executable
/Qnobss-init disable placement of zero-initialized vars in BSS (use DATA)

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Linking/Linker

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/link
/extlnk:<ext> specify that all following options are for the linker
        specify extension of file to be passed directly to linker
/F<n>
        set the stack reserve amount specified to the linker
/Qvc6
        use Visual C++ 6.0 linker and debug format (DEFAULT)
/Qvc7
        enable Visual Studio .NET 2002 linker and debug format
/Qvc7.1
        enable Visual Studio .NET 2003 linker and debug format
/Qvc8
        enable Visual Studio 2005 linker and debug format
/LD[d], /dll
        produce a DLL instead of an EXE ('LDd' = debug version)
/dbglibs
        use the debug version of runtime libraries, when appropriate
/MD
        use dynamically-loaded, multithread runtime
/MDs
        use dynamically-loaded, single thread runtime
/MG, /winapp
        use Windows API runtime libraries
/ML
        use statically-loaded, single thread runtime (/ML is DEFAULT)
/MT
        use statically-loaded, multithread runtime
/MW
        use statically-loaded, multidocument QuickWin runtime
/MWs
        use statically-loaded, single document QuickWin runtime
/libs:<keyword>
        determine the default libraries to be linked against
        dll - use dynamically-loaded, multithread runtime
        qwin - use statically-loaded, multidocument QuickWin runtime

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qwins - use statically-loaded, single document QuickWin runtime
static - use statically-loaded, single thread runtime (DEFAULT)
/static synonym to /libs:static
/4{Y|N}portlib enable/disable linking with portability library
/Zl omit library names from object file (same as /nolibdir)
/[no]threads specify whether or not multi-threaded libraries should be
linked against
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