GDB QUICK REFERENCE

Essential Commands

gdb program [core] debug program [using core dump core]
bg file:f: function set breakpoint at function [in file]
run arglist start your program with arglist
expr display the value of an expression
cont continue running your program
next line, stepping over function calls
next line, stepping into function calls

Starting GDB

start gdb, with no debugging files
start gdb debug, debugging program produced by
start gdb --help describe command line options

Stopping GDB

exit GDB also q or EOF (eg C-d)

Getting Help

list classes of commands
help one line descriptions of commands in
help command describe command

Executing Your Program

start your program with arglist
start your program with current argument list
start your program with input, output redirected
kill kill running program

tty dev use dev as stdin and stdout for next run
set arglist specify arglist for next run
set arglist specify empty argument list
show arglist display argument list
show env show all environment variables
show env var show value of environment variable
set env var string set environment variable
unset env var remove var from environment

Shell Commands

cd dir change working directory to dir
print working directory
make call "make"

Breakpoints and Watchpoints

break [file]:line set breakpoint at line number [in file]
break [file]:func set breakpoint at function [in file]
break *offset set breakpoint at offset lines from current stop
break offset set breakpoint at address addr
break set breakpoint at next instruction
break ... if expr break conditionally on nonzero expr
cond n [expr] new conditional expression on breakpoint n; make unconditional if no expr
break ... temporary break; disable when reached
break regex set a breakpoint for expression match
func expr set a waitpoint for expression match
info break show defined breakpoints
info watch show defined watchpoints
delete n delete breakpoints [or breakpoint n]
disable n disable breakpoints [or breakpoint n]
enable n enable breakpoints [or breakpoint n]
able once n disable again when reached
enable dal n disable when reached
ignore n count ignore breakpoint n, count times
command n execute GDB command n every time breakpoint n is reached
command list suppress default display
end end of command list

Program Stack

backtrace [n] print trace of all frames in stack; or of n frames
bt [n] innermost if n>0, outermost if n<0
frame [n] select frame number n or address of frame
up n select frame n frames up
down n select frame n frames down
info frame [addr] display selected frame, or frame at addr
info args display arguments of selected frame
info locals display local variables of selected frame
info reg [rn] register values for regs rn in selected frame
info all reg [rn] display all selected frame; all-reg includes floating point
info catch exception handlers active in selected frame

Execution Control

continue [count] continue running; if count specified, ignore this breakpoint next count times
step [count] execute until another line matched; repeat count times if specified
n [count] step by machine instructions rather than source lines
si [count] step next line, including any function calls
next [count] next machine instruction rather than source line
ni [count] run until next instruction (or location)
until [location] run until next instruction (or location)
finish run until selected stack frame returns
return [expr] pop selected stack frame without
signal num resume execution with signal (more if 0)
jump line run selected stack frame without
jump address resume execution at absolute or
time; use for altering program variables

Display

print [/f] [expr] show value of expr [or last value] $ according to format f
p [f] [expr] show value of expr [or last value] $ according to format f
x [f] [expr] show value of hexdecimal
x [f] [expr] show value of hexdecimal/dg
n [f] [expr] show value of octal
ua [f] [expr] show value of binary
a [f] [expr] show value of address or absolute or relative
u [f] [expr] show value of character
b [f] [expr] show value of boolean
f [f] [expr] show value of floating point
j [f] [expr] show value of addresses
x [f] [expr] show value of memory
x [f] [expr] show value of memory, format spec follows show
N [f] show count of how many units to display
u show unit size; one of
b individual bytes
h halfwords (two bytes)
w words (four bytes)
g giant words (eight bytes)
i machine instructions

Automatic Display

display [/f] [expr] show value of expr each time program
breakPoint [according to format f]
display display all enabled expressions on list
undisplay n remove number(s) n from list of
automatically displayed expressions
disable disp n disable display for expression(s) n number n
enable disp n enable display for expression(s) n number n
info display numbered list of display expressions

Expressions

expr
add
file
addr

Symbol Table

info address s
info func [regex]
info var [regex]

what is [expr]
ptype [expr]
ptype type

GDB Scripts

source script
define cmd
document cmd

Signals

handle signal act
print
nopr
stop
nSTOP
nops
info signals

Debugging Targets

target type param
help target
attach param
detach

Controlling GDB

set param value
show param

Parameters understood by set and show:
complaint print
confirm on/off
editing on/off
height bp
language bp
listsize n
prompt str
read x base
redefine
control terminals
width opt
write on/off
history...
print...

Source Files

dir names
list
list -
list files
info line num
info source
info sources
info for line
info regex
info regex

GDB under GNU Emacs

Max gdb
C-h m
C-x C-f
C-c C-f
C-x C-
C-x C-
C-x S-C

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Working Files

file [file]
core [file]
exec [file]
symbol [file]
load file
add-sym file addr
info files
path dirs
show path
info share

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