<<<<<<< texinfo.tex
=======
>>>>>>> 1.1.1.2

<<<<<<< texinfo.tex
=======
>>>>>>> 1.1.1.2

Table of Contents

Scope of this Document

2.1 The Symbol Side

The symbolic side of gdb can be thought of as “everything you can do in gdb without

3.1 Frames

A frame is a construct that gdb

Watchpoints can be either hardware-assisted or not; the latter type is known as "software watchpoints." gdb always uses hardware-assisted watchpoints if they are available, and falls

`target_insert_watchpoint` (*addr*, *len*, *type*)
`target_remove_watchpoint` (*addr*, *len*, *type*)
Insert or remove a hardware watchpoint starting at *addr*, for *len* bytes.

`i386_cleanup_dregs (void)`
: This function clears all the reference counts, addresses, and control bits in the

-

`void` **ui_out_tuple_** [Function]

`void` [Function]

```
ui_out_table_header (uiout, 3, ui_left, "enabled", "Enb"); /* 4 */
if (addressprint)
  {
   if (nr_printable_breakpoints > 0)
     annotate_field (4);
   if (TARGET_ADDR_BIT <= 32)
     ui_out_table_header (uiout, 10, ui_left, "addr", "Address");/* 5 */
   else
     ui_out_table_header (uiout, 18, ui_left, "addr", "Address");/* 5 */
  }
if (nr_printable_breakpoints > 0)
  annotate_field (5);
ui_out_table_header (uiout, 40, ui_noalign, "what", "What"); /* 6 */
ui_out_table_body (uiout);
if (nr_printable_breakpoints > 0)
  annotate_breakpoints_table ();
```

This example, from the `print_one_breakpoint`

```
struct ui_stream *stb = ui_out_stream_new (uiout);
struct cleanup *old_chain = make_cleanup_ui_out_stream_delete
...
annotate_field
print_expressiontream);
ui_out_field_stream (uiout,t",
```

This examle, also from `print_one_breakpoint`, shows how to use `ui_out_text` and `ui_out_field_string`

which is a pointer to another type. Typically, several FT_* types map to one TYPE_CODE_* type, and are distinguished by other members of the type struct, such as whether the type is signed or u2hdy uss

6.5.1 stabs

stabs started out as special symbols within the a.out format. Since then, it has been encapsulated into other file formats, such as COFF and ELF.

While ‘dbxread.c’ does some of the basic stab processing, including for encapsulated versions, ‘stabsread.c’ does the real work.

6.5.2stabsF

The basic COFF definition includes debugging information. level of support is minimal and non-extensible, and is not often used.

6.5.3stabsps debug (Third Eye)

ECOFF includes a definition of a special debug format.

The file ‘mdebugread.c’ implements reading for this format.

6.5.4stabsWARF 1

DWARF 1 is a debugging format that was originally designed to be used with ELF in

operations in the `evaluate_subexp` function defined in the file ‘`eval.c`’. Add

8 Host Definition

With the advent of Autoconf, it's rarely necessary to have host definition machinery anymore. The following information is provided, mainly, as an historical reference.

8.1 Adding a New Host

gdb's host configuration support normally happens via Autoconf. New host-specific definitions should not be needed. Older hosts gdb still use the host-specific definitions and files listed below, but these mostly exist for historical reasons, and will eventually disappear.

'`gdb/config/`*`arch`*`/`*`xyz`*`.mh`'

This file once contained both host and native configuration information (see Chapter 11 [Native Debugging], page 61) for the machine *xyz*. The host configuration information is now handed by Autoconf.

Host configuration information included a definition of `XM_FILE=xm-`*`xyz`*`.h` and possibly definitions for `CC`, `SYSV_DEFINE`, `XM_CFLAGS`,

‘ser-tcp.c’
: This contains generic TCP support using sockets.

8.2 Host Conditionals

When gdb is configured and compiled, various macros are defined or left undefined, to control compilation based on the attributes of the host system. These macros and their meanings (or if the meaning is not documented here, then one of the source files where they are used is indicated) are:

gdbINIT_FILENAME
: The default name of gdb’s initialization file (normally ‘.gdbinit’).

NO_STD_REGS
: This macro is deprecated.

NO_SYS_FILE
: Define this if your system does not have a <sys/file.h>.

SIGWINCH_HANDLER

`HAVE_MMAP`

In some cases, use the system call `mmap` for reading symbol tables. For some machines this allows for sharing and quick updates.

`HAVE_TERMIO`

`NORETURN` If defined, this should be one or more tokens, such as `volatile`, that can be used in both the declaration and definition of functions to indicate that they never return. The default is already set correctly if compiling with GCC. This will almost never need to be defined.

`GDB_OSABI_FREEBSD_ELF`
: FreeBSD using the ELF executable format

`GDB_OSABI_NETBSD_AOUT`
: NetBSD using the a.out executable format

`GDB_OSABI_NETBSD_ELF`
: NetBSD using the ELF executable format

`GDB_OSABI_WINCE`
: Windows CE

`GDB_OSABI_GO32`
: DJGPP

`GDB_OSABI_NETWARE`
: Novell NetWare

`GDB_OSABI_ARM_EABI_V1`
: ARM Embedded ABI version 1

`GDB_OSABI_ARM_EABI_V2`
: ARM Embedded ABI version 2

`GDB_OSABI_ARM_APCS`

```
    return TYPE_FLAG_ADDRESS_CLASS_1;
  else
    return 0;
}

static char *
somearch_address_class_type_flags_to_name (int type_flags)
{
  if (type_flags & TYPE_FLAG_ADDRESS_CLASS_1)
    return "short";
  else
    return NULL;
}

int
somearch_address_class_name_to_type_flags (char *name,
                                           int *type_flags_ptr)
{
  if (strcmp (name, "short") == 0)
    {
      *type_flags_ptr = TYPE_FLAG_ADDRESS_CLASS_1;
      return 1;
    }
  else
    return 0;
}
```

The qualifier `@short` is used in gdb's type expressions to indicate the presence of one of these "short" pointers. E.g, if the debug information indicates that `short_ptr_var` is one of these short pointers, gdb might show the following behavior:

```
(gdb) ptype short_ptr_var
type = int * @short
```

9.5 Raw and Virtual Register Representations

9.6 Using D□erent Register and Memory Data Representations

```
int frame_red_zone_size
```

```
CORE_ADDR unwind_sp (struct frame_info *
```

`IN_SOLIB_RETURN_TRAMPOLINE (`*`pc`*`, `*`name`*`)`
: Define this to evaluate to nonzero if the program is stopped in the trampoline that returns from a shared library.

`IN_SOLIB_DYNSYM_RESOLVE_CODE (`*`pc`*`)`
: Define this to evaluate to nonzero if the p9ogram is stopped in the dynamic linker.

`SKIP_SOLIB_RESOLVER (`*`pc`*`)`
: Define

`REGISTER_RAW_SIZE (`*`reg`*`)`

-

By default, the stack is grown sufficient to hold a frame-aligned (see [frame_align], page 45) breakpoint, *bp_addr* is set to the address reserved for that breakpoint, and *real_pc* set to *funaddr*.

This method replaces `DEPRECATED_CALL_DUMMY_WORDS`, `DEPRECATED_SIZEOF_CALL_DUMMY_WORDS`, `CALL_DUMMY`, `CALL_DUMMY_LOCATION`, `DEPRECATED_REGISTER_SIZE`, `GDB_TARGET_IS_HPPA`, `DEPRECATED_CALL_DUMMY_BREAKPOINT_OFFSET`, and `DEPRECATED_FIX_CALL_DUMMY`.

`DEPRECATED_PUSH_DUMMY_FRAME`

Used in 'call_function_by_hand' to create an artificial stack frame.

`DEPRECATED_REGISTER_BYTES` gdb

`TARGET_DOUBLE_COMPLEX_BIT`

There isn't a size limit on a patch, however, a developer is strongly encouraged to keep the patch size down.

Since each patch is well defined, and since each change has been tested and shows no regressions, the patches are considered *fairly*

10 Target Vector Definition

The target vector defines the interface between gdb's abstract handling of target systems,

10.5 Transport Layer

10.6 Builtin Simulator

11 Native Debugging

Several files control gdb's configuration for native support:

'gdb/config/*arch*/*xyz*.mh'
: Specifies Makefile fragments needed by a *native* configuration on machine *xyz*. In particular, this lists the required native-dependent object files, by defining 'NATDEPFILES=...'. Also specifies the header file which describes native support on *xyz*, by defining 'NAT_FILE= nm-*xyz*.h'. You can also define 'NAT_CFLAGS', 'NAT_ADD_FILES

11.3 /proc

KERNEL_U_ADDR

SVR4_SHARED_LIBS

12.2 opcodes

The opcodes library provides gdb's disassembler. (It's a separate library because it's also used in binutils, for 'objdump').

12.3 readline

Some functions, e.g. fputs_filtered() or error() , specify that they “should not be called when cleanups are not in place”. This means that any actions you need to reverse in the case of an error or interruption must be on the cleanup chain before you call these

`void *gdbarch_data (struct gdbarch *gdbarch, struct gdbarch_data *data_handle)` [Function]

gdb can use the non-portable function `alloca` for the allocation of small temporary

13.4.4 Formatting

The standard GNU recommendations for formatting must be followed strictly.

Pragmatics: The core of gdb *must be buildable on many platforms including DJGPP and MacOS/HFS. Every time an unfriendly file is introduced to the build process both* ‘`Makefile.in`’ *and* ‘`configure.in`’ *need to be modified accordingly. Compare the convoluted conversion process needed to transform* ‘`COPYING`’ *into* ‘`copying.c`’ *with the conversion needed to transform* ‘`version.in`’ *into* ‘`version.c`’*.*

Any file non 8.3 compliant file (that is not used when building the core of gdb) must be added to ‘`gdb/config/djgpp/fnchange.lst`’.

Pragmatics: This is clearly a compromise.

When gdb has a local version of a system header file (ex ‘`string.h`’) the file name based on the POSIX header prefixed with ‘`gdb_`’ (‘`gdb_string.h`’). These headers should be relatively independent: they should use only macros defined by ‘`configure`’, the compiler,

`SLASH_STRING`

This evaluates to a constant string you should use to produce an absolute filename from leading directories and the file's basename. `SLASH_STRING` is `"/"` on most systems, but might be `"\\"` for some Windows-based ports.

Review ‘gdb/README’

Grab one of the nightly snapshots and then walk through the ‘gdb/README’ looking for anything that can be improved. The schedule script will mention this in its e-mail.

Refresh any imported files.

A number of files are taken from external repositories. They include:

- ‘texinfo/texinfo.tex’
- ‘config.guess’ et. al. (see the top-level ‘MAINTAINERS’ file)
- ‘etc/standards.texi’, ‘etc/make-stds.texi’

Check the ARI

- by using *-D YYYY-MM-DD-gmt* the branch is forced to an exact date/time.
- the trunk is first taged so that the branch point can easily be found
- Insight (which includes GDB) and dejagnu are all tagged at the same time
- ‘version.in’ gets bumped to avoid version number conflicts
- the reading of ‘.cvsrc

Maintainer note: Other projects generate ‘`README`’ *and* ‘`INSTALL`’ *from the core*

```
M gdb/ChangeLog
M gdb/NEWS
M gdb/README
M gdb/version.in
... lots of generated files ...
$
```

1. Commit ‘version.in’ and ‘ChangeLog’
2. Tweak ‘version.in’ (and ‘ChangeLog’ to read *L*.*M*.*N*-0000-00-00-cvs so that the version update process can restart.
3. Make the release candidate available in ftp://sources.redhat.com/pub/gdb/snapshots/branch

```
$(( $(date +%Y%m%d) - $(git log -1 --format=%cd --date=format:%Y%m%d v2.3.0) ))
```

16 Testsuite

The testsuite is an important component of the gdb

The gdb maintainers will only install "cleanly designed" patches. This manual summarizes what we believe to be clean design for gdb.

If the maintainers don't have time to put the patch in when it arrives, or if there is any question about a patch, it goes into a large queue with everyone else's patches and bug reports.

The legal issue is that to incorporate substantial changes requires a copyright assignment from you and/or your employer, granting ownership of the changes to the Free Software Foundation. You can get the standard documents for doing this by sending mail to gnu@gnu.org

STACK_END_ADDR

`extern struct observer *observer_attach_normal_stop` [Function]

A “Secondary Section” is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document’s overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (For example, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

3.COPYING IN QUANTITY

If you publish printed copies of the Document numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long

made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License gi,e permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

5. COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 abo,e for modified ,ersions, provided that you include in the combinati27in of theonedectthie ofin of tinial7(in)-d80(Do)-28(cumen)ns