

How to install gdbserver on Matrix500

1.Install DDD(Data Display Debugger) on your Linux-based PC , such as Ubuntu,Debian....and so on .

```
ubuntu(debian) : sudo apt-get install ddd
fedora / redhat : sudo rpm -ivh ddd
```

2.Upload 'gdbserver' which is place on our released CD to Matrix.
libthread_db.so.1 to Matrix /lib/

3.Compile and upload your program that is compiled with the option 'g' to Matrix.

For example : arm-linux-gcc -g example.c -o example

4.Execute 'gdbserver' with the option 'tcp port' which you can assign any available port on Matrix.

For example : ./gdbserver :9999 example

5.Execute 'DDD' on your host PC and open the same program as Matrix's example.

For example : ddd --debugger arm-linux-gdb example

6.Input the following command, “target remote Matrix's IP : TCP Port” in the console of DDD.

When the connection is established, the message 'Remote debugging from host 000.000.000.000' will be prompted.

The image shows two overlapping windows. The background window is a terminal on a host PC (artila@artila-ThinkPad-R60e) showing the execution of 'gdbserver' on Matrix500. The foreground window is the DDD GUI, which is displaying the source code of 'temp.c' and has a status bar indicating '(gdb) target remote 192.168.1.26:9999'.

```
artila@artila-ThinkPad-R60e:~$ ddd --debugger arm-linux-gdb example
root@Matrix500 /disk>/ifconfig
eth0      Link encap:Ethernet  HWaddr 00:13:48:00:3E:D7
          inet addr:192.168.1.26  Bcast:192.168.1.255  Mask:255.255.255
          UP BROADCAST NOTRAILERS RUNNING MULTICAST  MTU:1500  Metric:0
          RX packets:67  errors:0  dropped:0  overruns:0  frame:0
          TX packets:29  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  txqueuelen:1000
          Interrupt:24  Base address:0xc000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:0  errors:0  dropped:0  overruns:0  frame:0
          TX packets:0  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  txqueuelen:0

root@Matrix500 /disk>./gdbserver :9999 example
Process example created; pid = 751
Listening on port 9999
Remote debugging from host 192.168.1.53
```

```
DDD: /home/artila/temp.c
File Edit View Program Commands Status Source Data Help
(): temp.c:1
#include <stdlib.h>
#include <stdio.h>

void test(int i)
{
    int j;
    for(j=0 ; j<=i ;j++)
    {
        printf("j*i = %d\n",j*i);
    }
}

int main()
{
    int i;
    for(i=0 ; i<=5 ; i++)
    {
        printf("i = %d\n",i);
        test(i);
    }
    return 0;
}

(gdb) target remote 192.168.1.26:9999
Disassembling location 0x40001b80 to 0x40001c80...done.
```

7. Some useful commands :

- Command "br" or go into the line and click right button of mouse to set break point.

For example : br 10 (set break point at line 10)

The image shows a terminal window on the left and the DDD IDE on the right. The terminal displays the output of the `ifconfig` command for `eth0` and `lo` interfaces, and the output of `gdbserver` running on port 9999. The DDD IDE shows the source code of `temp.c` with a breakpoint set at line 10. A context menu is open over line 10, showing options like "Set Breakpoint", "Set Temporary Breakpoint", "Continue Until Here", and "Set Execution Position". The GDB console at the bottom of the IDE shows the commands `(gdb) br 10` and `(gdb) break temp.c:21` being executed.

- Command 'c' to run to next break point.

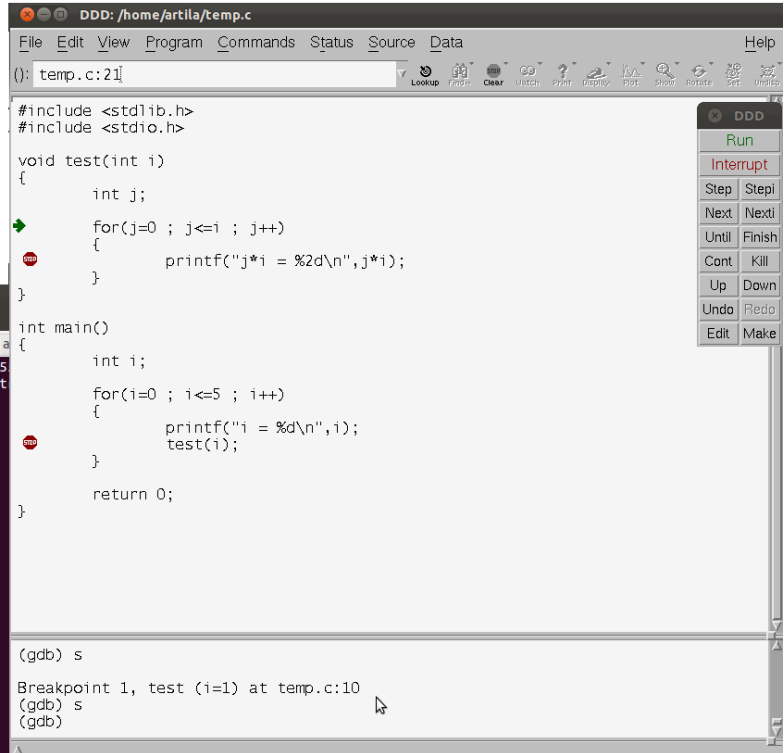
The image shows the same terminal and DDD IDE setup as in the previous screenshot. The terminal now shows the output of the `gdbserver` command, including the `i = 0` output. The DDD IDE shows the source code of `temp.c` with a breakpoint set at line 21. The GDB console at the bottom of the IDE shows the command `(gdb) c` being executed, and the output `Breakpoint 2, main () at temp.c:21`.

c. Command 's' to debug line by line.

```
artila@artila-ThinkPad-R60e: ~
File Edit View Search Terminal Tabs Help
artila@artila-ThinkPad-R60e: ~
inet addr:192.168.1.26 Bcast:192.168.1.255 Mask:255.255.255
UP BROADCAST NOTRAILERS RUNNING MULTICAST MTU:1500 Metric:0
RX packets:67 errors:0 dropped:0 overruns:0 frame:0
TX packets:29 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
    Interrupt:24 Base address:0xc000

lo
  Link encap:Local Loopback
  inet addr:127.0.0.1 Mask:255.0.0.0
  UP LOOPBACK RUNNING MTU:16436 Metric:1
  RX packets:0 errors:0 dropped:0 overruns:0 frame:0
  TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
  collisions:0 txqueuelen:0

root@Matrix500 /disk> ./gdbserver :9999 example
Process example created; pid = 751
Listening on port 9999
Remote debugging from host 192.168.1.53
t = 0
j*i = 0
t = 1
j*i = 0
j*i = 1
```



```
DDD: /home/artila/temp.c
File Edit View Program Commands Status Source Data Help
(): temp.c:21
#include <stdlib.h>
#include <stdio.h>

void test(int i)
{
    int j;
    for(j=0 ; j<=i ; j++)
    {
        printf("j*i = %2d\n",j*i);
    }
}

int main()
{
    int i;
    for(i=0 ; i<=5 ; i++)
    {
        printf("i = %d\n",i);
        test(i);
    }
    return 0;
}

(gdb) s
Breakpoint 1, test (i=1) at temp.c:10
(gdb) s
(gdb)
```

For details, please refer to <http://www.gnu.org/software/ddd/>.