

Guix on RISC-V Progress

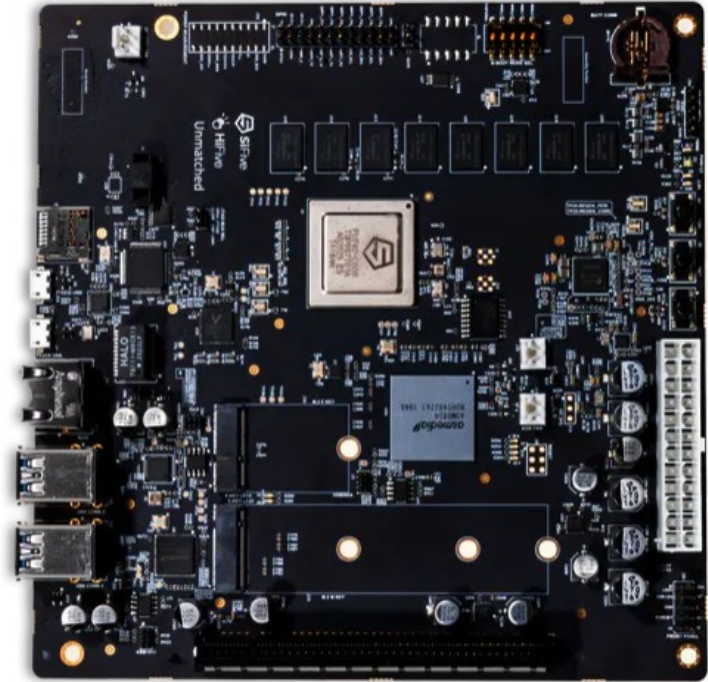
Messy Desk



HiFive Unmatched

```
(ins)efraim@unmatched:~$ lscpu
Architecture:      riscv64
  Byte Order:      Little Endian
CPU(s):            4
  On-line CPU(s) list: 0-3
```

```
(ins)efraim@unmatched:~$ cat /proc/cpuinfo
processor      : 0
hart          : 2
isa           : rv64imafdc
mmu           : sv39
uarch        : sifive,u74-mc
```



Age	Commit message (Expand)	Author	Files	Lines
2022-01-27	gnu: elfutils: Fix building on riscv64-linux.	Efraim Flashner	1	-2/+9
2022-01-27	gnu: pcre2: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+3
2022-01-27	gnu: pcre: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+4
2022-01-27	gnu: Add %final-inputs-riscv64.	Efraim Flashner	2	-2/+8
2022-01-11	gnu: libtool: Skip the nopic tests on riscv.	Efraim Flashner	1	-4/+4
2022-01-14	gnu: %boot3-inputs: Add missing input.	Efraim Flashner	1	-0/+3
2022-01-14	gnu: gcc-boot0: Use libstdc++-boot0-gcc7 on riscv64-linux.	Efraim Flashner	1	-1/+47
2022-01-14	gnu: bootstrap: Add support for riscv64-linux.	Efraim Flashner	6	-9/+127
2021-12-28	gnu: Add rust-riscv-0.7.	Nicolas Goaziou	1	-0/+46
2021-12-27	gnu: Add rust-riscv-0.7.	Nicolas Goaziou	1	-0/+46
2021-10-24	gnu: u-boot: Update to 2021.10.	Vagrant Cascadian	3	-4/+182
2021-10-10	gnu: openssl: Fix build on riscv64-linux.	Efraim Flashner	1	-2/+6
2021-10-10	gnu: bdb: Fix building on riscv64-linux.	Efraim Flashner	1	-11/+14
2021-10-10	gnu: guile: Fix building on riscv64-linux.	Efraim Flashner	1	-8/+11
2021-10-10	utils: Define 'target-riscv64?' predicate.	Efraim Flashner	1	-0/+6
2021-09-06	gnu: linux-libre: Parameterize the revision of the deblob scripts.	Leo Famulari	1	-20/+64
2021-08-05	gnu: Rename u-boot-sifive-fu540 to sifive-unleashed.	Pierre Langlois	2	-4/+4
2021-03-15	services/qemu-binfmt: Use the F flag and the static output of QEMU.	Maxim Cournoyer	3	-111/+129
2020-10-24	gnu: u-boot: Update to 2020.10.	Vagrant Cascadian	2	-5/+5
2020-10-18	gnu: u-boot: Update to 2020.10.	Vagrant Cascadian	2	-5/+5
2020-07-09	gnu: u-boot: Update to 2020.07.	Vagrant Cascadian	9	-1759/+2
2020-04-04	maint: Remove unsupported cross-compilation jobs from 'release-manifest.scm'.	Ludovic Courtès	1	-2/+11
2020-02-01	gnu: u-boot-qemu-riscv64-smode: Patch to fix boot menu.	Vagrant Cascadian	3	-1/+62
2020-02-01	gnu: Add linux-libre-riscv64-generic.	Vagrant Cascadian	1	-1/+7
2020-02-01	services: virtualization: Add riscv32 and riscv64 to qemu platforms.	Vagrant Cascadian	1	-1/+11
2020-01-31	gnu: Add u-boot-qemu-riscv64.	Vagrant Cascadian	1	-0/+3
2020-01-31	gnu: u-boot-qemu-riscv64-smode: Add package.	Vagrant Cascadian	1	-0/+3
2020-01-31	ci: Cross-build for riscv64-linux-gnu.	Ludovic Courtès	1	-1/+2
2019-05-29	gnu: Add basic support for riscv64-linux-gnu targets.	Carl Dong	2	-0/+2

[prev]

Age	Commit message (Expand)	Author	Files	Lines
5 days	gnu: isc-dhcp: Fix cross-compiling to riscv64-linux.	Efraim Flashner	1	-2/+4
14 days	gnu: libatomic-ops: Fix test suite on riscv64-linux.	Efraim Flashner	1	-0/+6
2022-07-12	gnu: numactl: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+4
2022-07-12	gnu: python-attrs: Remove test deadlines on riscv64-linux.	Efraim Flashner	1	-0/+9
2022-07-11	gnu: icu4c-70: Fix building on riscv64-linux.	Efraim Flashner	1	-2/+16
2022-07-04	gnu: tbb: Fix building on riscv64-linux.	Efraim Flashner	3	-4/+48
2022-06-22	gnu: llvm-9: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+16
2022-06-19	gnu: python-numpy: Skip 2 more tests on riscv64-linux.	Efraim Flashner	1	-1/+8
2022-06-16	gnu: llvm-9: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+17
2022-05-31	gnu: mozjs: Cleanup to only keep the last version.	Maxim Cournoyer	12	-1548/+114
2022-05-30	gnu: nss: Skip tests on riscv64-linux.	Efraim Flashner	1	-1/+4
2022-05-30	gnu: nss: Adjust make-flags for riscv64-linux.	Efraim Flashner	1	-1/+6
2022-05-29	gnu: clang-from-llvm: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+9
2022-05-25	Move (gnu platform) and (gnu platforms ...) to guix/ platform: Add glibc-dynamic-linker field.	Josselin Poiret	28	-49/+42
2022-05-22	platform: Introduce new platforms.	Mathieu Othacehe	9	-41/+85
2022-05-22	platform: Introduce new platforms.	Mathieu Othacehe	6	-7/+159
2022-05-06	gnu: mescc-tools: Update supported-systems.	Jan (janneke) Nieuwenhuizen	1	-1/+1
2022-04-05	gnu: u-boot: Update to 2022.04.	Vagrant Cascadian	4	-118/+48
2022-03-31	gnu: gsl: Force bootstrap when cross-compiling to riscv64-linux.	Arun Isaac	1	-1/+14
2022-03-31	gnu: Add riscv-pk.	Arun Isaac	1	-0/+39
2022-03-21	gnu: guix: Fix test suite on riscv64-linux.	Efraim Flashner	1	-0/+6
2022-03-16	Revert "gnu: Add %final-inputs-riscv64."	Efraim Flashner	2	-16/+1
2022-03-16	gnu: gcc: For riscv64-linux remove STARTFILE_PREFIX_SPEC.	Efraim Flashner	1	-0/+10
2022-03-07	system: Set kernel name for riscv64-linux.	Efraim Flashner	1	-1/+2
2022-03-07	gnu: dtc: Use different source tarball.	Efraim Flashner	1	-2/+2
2022-03-07	build-system/meson: Add more cross-compilation targets.	Efraim Flashner	1	-0/+4
2022-03-07	gnu: libjpeg-turbo: Fix cross-compiling to riscv64-linux.	Efraim Flashner	1	-1/+3
2022-03-07	gnu: libxrender: Fix cross compiling to riscv64-linux.	Efraim Flashner	1	-3/+19
2022-03-01	initrd: Use non-hyphenated kernel command-line parameter names.	Maxim Cournoyer	9	-53/+69
2022-02-20	gnu: elogind: Build without kexec-tools on riscv64-linux.	Efraim Flashner	1	-13/+22
2022-02-20	gnu: kexec-tools: Remove riscv64-linux from supported-systems.	Efraim Flashner	1	-0/+1
2022-02-20	gnu: postgresql-13: Fix building on riscv64-linux.	Efraim Flashner	3	-1/+65
2022-02-16	gnu: valgrind: Remove riscv64-linux from supported-systems.	Efraim Flashner	1	-1/+3
2022-02-16	gnu: qemu: Skip some tests on riscv64-linux.	Efraim Flashner	1	-0/+12
2022-02-15	gnu: gcc-2.95: Support more systems.	Efraim Flashner	1	-28/+53
2022-02-07	gnu: webrtc-audio-processing: Fix building on powerpc architectures.	Efraim Flashner	3	-7/+127
2022-02-07	gnu: isc-dhcp: Fix building on riscv64-linux.	Efraim Flashner	1	-0/+16
2022-02-07	gnu: libx264: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+14
2022-02-05	gnu: webrtc-audio-processing: Fix building on riscv64-linux.	Efraim Flashner	1	-1/+14
2022-02-05	gnu: libfaketime: Adjust flags on riscv64-linux.	Efraim Flashner	1	-1/+2
2022-02-04	gnu: mozjs-60: Add support for riscv64-linux.	Efraim Flashner	3	-1/+134
2022-02-02	gnu: texlive-latex-base: Skip JIT formats on riscv64-linux.	Efraim Flashner	1	-2/+3
2022-02-02	gnu: ruby-rubocop: Skip tests on riscv64-linux.	Efraim Flashner	1	-1/+3
2022-02-02	gnu: ruby-stackprof: Adjust skipped test on riscv64-linux.	Efraim Flashner	1	-5/+9
2022-02-01	gnu: %final-inputs-riscv64: Add comment.	Efraim Flashner	1	-0/+9
2022-02-01	gnu: libaio: Fix test suite on riscv64-linux.	Efraim Flashner	1	-1/+13
2022-02-01	gnu: openblas: Fix building on riscv64-linux.	Efraim Flashner	1	-0/+2
2022-01-31	gnu: texlive-bin: Fix building on riscv64-linux.	Efraim Flashner	1	-8/+9
2022-01-30	gnu: mesa: Add support for riscv64-linux.	Efraim Flashner	1	-5/+17
2022-01-27	gnu: icu4c: Skip tests on riscv64-linux.	Efraim Flashner	1	-0/+8

STARTFILE_PREFIX_SPEC

```
#define LD_EMUL_SUFFIX \  
  "%{mabi=lp64d:}" \  
  "%{mabi=lp64f:_lp64f}" \  
  "%{mabi=lp64:_lp64}" \  
  "%{mabi=ilp32d:}" \  
  "%{mabi=ilp32f:_ilp32f}" \  
  "%{mabi=ilp32:_ilp32}" \  
  
#define LINK_SPEC "\\  
-melf" XLEN_SPEC "lriscv" LD_EMUL_SUFFIX " \  
%{mno-relax:--no-relax} \  
%{shared} \  
%{!shared: \  
  %{\!static: \  
    %{\rdynamic:-export-dynamic} \  
    -dynamic-linker " GNU_USER_DYNAMIC_LINKER "} \  
  %{\static:-static}}" \  
  
#define TARGET_ASM_FILE_END file_end_indicate_exec_stack \  
  
#define STARTFILE_PREFIX_SPEC \  
  "/lib" XLEN_SPEC "/" ABI_SPEC "/" \  
  "/usr/lib" XLEN_SPEC "/" ABI_SPEC "/" \  
  "/lib/ " \  
  "/usr/lib/ "
```

gcc/config/riscv/linux.h

STARTFILE_PREFIX_SPEC

```
# This file was generated by multilib-generator with the command:
# ./multilib-generator rv32imac-ilp32-rv32ima,rv32imaf,rv32imafd,rv32imafc,rv32imafdc- rv32imafdc-ilp32d-rv32imafd- rv64imac-lp64-rv64i
ma,rv64imaf,rv64imafd,rv64imafc,rv64imafdc- rv64imafdc-lp64d-rv64imafd-
MULTILIB_OPTIONS = march=rv32imac/march=rv32ima/march=rv32imaf/march=rv32imafd/march=rv32imafc/march=rv32imafdc/march=rv32g/march=rv32gc
/march=rv64imac/march=rv64ima/march=rv64imaf/march=rv64imafd/march=rv64imafc/march=rv64imafdc/march=rv64g/march=rv64gc mabi=ilp32/mabi=i
lp32d/mabi=lp64/mabi=lp64d
MULTILIB_DIRNAMES = rv32imac \
rv32ima \
rv32imaf \
rv32imafd \
rv32imafc \
rv32imafdc \
rv32g \
rv32gc \
rv64imac \
rv64ima \
rv64imaf \
rv64imafd \
rv64imafc \
rv64imafdc \
rv64g \
rv64gc ilp32 \
ilp32d \
lp64 \
lp64d
MULTILIB_REQUIRED = march=rv32imac/mabi=ilp32 \
march=rv32imafdc/mabi=ilp32d \
march=rv64imac/mabi=lp64 \
march=rv64imafdc/mabi=lp64d
MULTILIB_REUSE = march.rv32imac/mabi.ilp32=march.rv32ima/mabi.ilp32 \
march.rv32imac/mabi.ilp32=march.rv32imaf/mabi.ilp32 \
march.rv32imac/mabi.ilp32=march.rv32imafd/mabi.ilp32 \
march.rv32imac/mabi.ilp32=march.rv32imafc/mabi.ilp32 \
march.rv32imac/mabi.ilp32=march.rv32imafdc/mabi.ilp32 \
```

gcc/config/riscv/t-linux-multilib

How many packages?

Guix weather outputs:

- computing 21,416 package derivations for x86_64-linux...
- computing 19,727 package derivations for aarch64-linux...
- computing 19,436 package derivations for riscv64-linux...
- computing 17,805 package derivations for i686-linux...

* About a week ago

Guix weather output

```
(ins)efraim@unmatched:~/workspace/guix-staging$ time ./pre-inst-env guix \
  weather --substitute-urls="http://192.168.1.187:3000" -c 100
```

```
computing 19,508 package derivations for riscv64-linux...
looking for 20,308 store items on http://192.168.1.187:3000...
http://192.168.1.187:3000
 15.9% substitutes available (3,239 out of 20,308)
unknown substitute sizes
16,802.9 MiB on disk (uncompressed)
0.064 seconds per request (1,105.7 seconds in total)
15.7 requests per second
(continuous integration information unavailable)
```

* This Morning

Guix weather output

9490 packages are missing from 'http://192.168.1.187:3000' for 'riscv64-linux', among which:

- 1471 ghc@7.10.3
- 1215 go@1.16.15
- 656 classpath@0.93
- 527 sbcl-flexi-streams@1.0.19
- 344 sbcl-cffi@0.24.1
- 276 openlibm@0.7.4
- 275 libunwind-julia@1.3.1
- 219 node@10.24.1
- 219 librsvg@2.50.7
- 205 qtscript@5.15.5
- 151 gst-plugins-bad@1.20.3
- 144 tracker@3.3.3
- 143 librsvg@2.50.7
- 123 python-pandas@1.4.2
- 110 camlboot@0.0.0-1.45045d0
- 102 trytond-analytic-account@6.2.0
- 100 trytond-stock@6.2.7

Unsupported, Not yet supported, or Broken?

- GHC
- Valgrind
- Libunwind < 1.6.0 (supported on Staging)
- Node @ 10
- Classpath & Java bootstrap
- Julia
- GCCGO -> go ?
- Camlboot ?

Rust support!

thepowersgang / **mrustc** Public

<> Code Issues 21 Pull requests 6 Actions Projects Wiki Security Insights

Add support for riscv64 #276

Merged thepowersgang merged 1 commit into thepowersgang:master from Millak:riscv64 on Jul 17

Conversation 2 Commits 1 Checks 5 Files changed 2

Millak commented on Jul 10 Contributor ...

This was tested on a HiFive Unmatched board with rust-1.54.

Add support for riscv64 Verified ✓ 6017504

thepowersgang commented on Jul 11 Owner ...

Did that "Just Work" doing a full bootstrap on a riscv64 machine? (i.e. `./build-1.54.sh` and `make -C run_rustc RUSTC_VERSION=1.54.0`)

Millak commented on Jul 11 Contributor Author ...

I also passed `RUSTC_TARGET=riscv64gc-unknown-linux-gnu` and used the distro packaged `llvm-13`.

I broke out the steps in `build-1.54.sh`. Looks like I ran 'make test' after `make run_rustc` and skipped 'make local_tests'. I also used the bundled `libgit2`. So yeah, I think you can say it basically just worked :) <https://git.savannah.gnu.org/cgiit/guix.git/tree/gnu/packages/rust.scm?h=staging#n286>

Took about 56 hours to build rust-1.54. I used the tagged 0.10 `mrustc` commit with my patch. About 6 hours for each of rust-1.55, 1.56 and 1.57. I then used rust-1.57 to build `librsvg`.

thepowersgang merged commit `495f85b` into `thepowersgang:master` on Jul 17 View details
6 checks passed

Disk image

Preparing disk image

```
# create image file
dd if=/dev/zero of=debian-sid-risc-v-sifive-unmatched.img bs=1M count=4096

# Partition image with correct disk IDs
sudo sgdisk -g --clear --set-alignment=1 \
    --new=1:34:+1M: --change-name=1:'u-boot-spl' --typecode=1:5b193300-fc78-40cd-8002-e86c45580b47 \
    --new=2:2082:+4M: --change-name=2:'opensbi-uboot' --typecode=2:2e54b353-1271-4842-806f-e436d6af6985 \
    --new=3:16384:+400M: --change-name=3:'boot' --typecode=3:0x0700 --attributes=3:set:2 \
    --new=4:835584:-0 --change-name=4:'rootfs' --typecode=4:0x8300 \
    debian-sid-risc-v-sifive-unmatched.img

# Mount image in loop device
sudo losetup --partscan --find --show debian-sid-risc-v-sifive-unmatched.img

# format partitions
sudo mkfs.vfat /dev/loop0p3
sudo mkfs.ext4 /dev/loop0p4
sudo e2label /dev/loop0p3 boot
sudo e2label /dev/loop0p4 rootfs
```

More new boards

Item		VisionFive 2	VisionFive 1
OS & Kernel		Debian/Fedora OS	Fedora OS
CPU / SoC		SFive U74 Quad-core 64bit SoC with RV64GC ISA @1.5GHz	SIFive U74 Dual-Core 64-bit RV64GC ISA SoC with 2MB L2 cache @ 1.0GHz
Memory		2GB/4GB/8GB LPDDR4	8GB LPDDR4
GPU		OpenGL ES 3.2, OpenCL 1.2, Vulkan 1.2	None
Multimedia	HDMI	1 x HDMI ports (up to 4kp30)	1 x HDMI 2.0 (up to 1080p@60fps display)
	Display/DSI	1x 4-lane MIPI DSI display port, up to 2k@30fps 1x 2-lane MIPI DSI display port	2-lane MIPI DSI display port
	Camera/CSI	2-lane MIPI CSI camera port	2 x MIPI-CSI (up to 4K@30fps)
	Encoder/Decoder	H265 (4kp30 decode, 1080p30 encode) H264 (4kp30 decode)	Video Decoder (H264/H265) up to 4K@60fps
Connectivity	WLAN/Bluetooth	None, supported by M.2 expansion module	2.4 GHz IEEE 802.11ac wireless, Bluetooth 4.2, BLE
	Ethernet	2 x Gigabit Ethernet	1 x Gigabit Ethernet
	USB	2 x USB 2.0 ports; 2 x USB 3.0 ports.	2 x USB 2.0 ports; 2 x USB 3.0 ports.
	M.2 Key	1 x M-Key	None
Power		5V DC via USB-C with PD, up to 30W 5V DC via GPIO header (minimum 3A*) Power over Ethernet (PoE) enabled (requires separate PoE hardware module)	5V DC via USB-C connector (minimum 3A*) 5V DC via GPIO header (minimum 3A*) Power over Ethernet (PoE) enabled (requires separate PoE HAT)