

1. Expression `i--` is a post-decrement operation, so it will first use the value of `i` and then decrement it. It is supported by the C compiler.
2. The size of `char`, `int`, and `long` is 1 byte, 4 bytes, and 8 bytes, respectively, in the x86_64 machine; these are architecture-dependent, but in our case, it's x86_64.
3. Compiler does padding on the structs.
 - a. Let's say we want to have an array of the struct.


```
struct st0[N];
```

 then `st0[i].x` ($i \geq 0 \ \&\& \ i < N$) should be aligned with 4 bytes as the size of the member `x` is 4 bytes.
 But struct has a second member, `y`, which takes one byte, so it will add padding of 3 bytes at the end.
 - b. Same as above, here, `x` always should be aligned with 4 bytes, and because there are 2 more members, `y` and `z`, which need only 1-byte alignment (alignment needed = size), so, here, 2 bytes of padding will be added.
4. `v` is 8 bytes, little-endian; when we get the address and convert it into a char pointer, the pointer will give you only one byte during dereferencing because the size of the char is one byte. The 2nd thing to notice here is this is a little-endian, and the format specifier `"%02x"` gives print 2 hexadecimal digit values.
5. `p` is a pointer to `i`, when `*p = 5`; means `i = 5`, now `q` is a pointer to `j`, when `*q = *p + i`; which becomes `j = 5 + 5`
 so `i = 5`; and `j = 10`;
6. So that virtual address `0x0000000000000000` gives segfault on dereferencing because the 1st page is not mapped (Way of detecting error)
7. `(sz)+PGSIZE-1` is increasing it at least the next page boundary. `& ~(PGSIZE-1)` is removing the extra value greater than `PGSIZE` from it, like taking the floor in math.
8. `x` is an array of `int[5]`, and `x` points to the start of the array: `0x7ffdfbf7f00`.
`x` is a pointer to `int`, `x + 1` points to the next `int` (4 bytes later) `0x7ffdfbf7f04`.
`&x` is the address of the whole array, the same as `x`: `0x7ffdfbf7f00`.
`&x + 1` points to the memory after the array ($5 * \text{sizeof(int)}$): `0x7ffdfbf7f14`.
9. Purpose: Generates a new RSA SSH key pair
 - `t rsa` Specifies the RSA algorithm
 - `b 2048` Sets the key length to 2048 bits
 - `f ssh id_rsa` Saves the private key to `ssh id_rsa` and the public key to `ssh id_rsa pub`
 - `N` Sets an empty passphrase for the private key.

1. tig on latest linux repo:

```
2025-01-16 19:49 -0800 Linus Torvalds M- [master] (origin/master) Merge tag 'drm-fixes-2025-01-17' of https://gitlab.freedesktop.org/drm/kernel
2025-01-17 08:50 +1000 Dave Airlie M- Merge tag 'drm-xe-fixes-2025-01-16' of https://gitlab.freedesktop.org/drm/xe/kernel into drm-fixes
2025-01-13 16:25 -0800 Matthew Brost o drm/xe: Mark ComputeCS read mode as UC on iGPU
2025-01-10 18:15 -0800 Ashutosh Dixit o drm/xe/oa: Add missing VISACTL mux registers
2024-12-11 12:17 +0100 Maciej Patelczyk o drm/xe: make change ccs_mode a synchronous action
2024-12-11 12:17 +0100 Maciej Patelczyk o drm/xe: Introduce xe_gt_reset and xe_gt_wait_for_reset
2024-12-12 11:01 -0800 Jesus Neryar o drm/xe/guc: Adding steering info support for GuC register lists
2025-01-17 08:48 +1000 Dave Airlie M- Merge tag 'drm-intel-fixes-2025-01-15' of https://gitlab.freedesktop.org/drm/i915/kernel into drm-fixes
2024-11-29 08:50 +0200 Ville Syrjälä o drm/i915/fb: Relax clear color alignment to 64 bytes
2025-01-16 12:33 +1000 Dave Airlie M- Merge tag 'amd-drm-fixes-6.13-2025-01-15' of https://gitlab.freedesktop.org/agd5f/linux into drm-fixes
2025-01-07 17:09 +0800 Gui Chengming o drm/amdgpu: fix fw attestation for MPA_14_0_{2/3}
2024-12-20 16:21 +0100 Christian König o drm/amdgpu: always sync the GFX pipe on ctx switch
2025-01-09 15:58 +0800 Kenneth Feng o drm/amdgpu: disable gfxoff with the compute workload on gfx12
2025-01-09 21:33 +0530 Sriivasan Shanmugam o drm/amdgpu: Fix Circular Locking Dependency in AMDGPU GFX Isolation
2024-12-05 23:20 +0800 Tom Chung o drm/amd/display: Disable replay and psr while VRR is enabled
2024-12-05 23:08 +0800 Tom Chung o drm/amd/display: Fix PSR-SU not support but still call the amdgpu_dm_psr_enable
2024-12-17 11:51 -0700 Alex Hung o drm/amd/display: Initialize denominator defaults to 1
2024-10-01 17:13 +0800 Tom Chung o drm/amd/display: Use HW lock mgr for PSR
2024-12-20 17:12 +0800 Yiling Chen o drm/amd/display: Remove unnecessary eDP power down
2024-12-11 12:06 -0500 Leo Li o drm/amd/display: Do not elevate mem_type change to full update
2024-12-09 12:58 -0500 Leo Li o drm/amd/display: Do not wait for PSR disable on vbl enable
2024-12-19 14:15 +0500 Nicholas Susanto o Revert "drm/amd/display: Enable urgent latency adjustments for DCN35"
2024-12-09 15:25 +0800 Wayne Lin o drm/amd/display: Reduce accessing remote DPCD overhead
2024-12-10 11:17 +0800 Wayne Lin o drm/amd/display: Validate mdoe under MST LCT=1 case as well
2025-01-08 15:17 -0500 Alex Deucher o drm/amdgpu/smu13: update powersave optimizations
2025-01-16 11:54 +1000 Dave Airlie M- Merge tag 'drm-misc-fixes-2025-01-15' of https://gitlab.freedesktop.org/drm/misc/kernel into drm-fixes
2024-11-12 13:23 +0300 Dan Carpenter o drm/bridge: ite-it6263: Prevent error pointer dereference in probe()
2025-01-13 12:47 -0300 Maira Canal o drm/v3d: Ensure job pointer is set to NULL after job completion
2025-01-10 12:53 -0600 Ian Forbes o drm/vmwgfx: Add new_keep_resv BO param
2025-01-08 14:13 -0600 Ian Forbes o drm/vmwgfx: Remove busy places
2024-12-10 13:55 -0600 Ian Forbes o drm/vmwgfx: Unreserve BO on error
2025-01-09 10:55 +1000 Dave Airlie o nouveau/fence: handle cross device fences properly
2024-12-24 20:22 +0200 Cristian Ciocaltea o drm/tests: connector: Add ycbcr_420_allowed tests
2024-12-24 20:22 +0200 Cristian Ciocaltea o drm/connectors: hdmi: Validate supported_formats matches ycbcr_420_allowed
2024-12-24 20:22 +0200 Cristian Ciocaltea o drm/bridge: connector: Sync supported_formats with computed ycbcr_420_allowed
2024-12-24 20:22 +0200 Cristian Ciocaltea o drm/bridge: Prioritize supported_formats over ycbcr_420_allowed
2025-01-02 12:49 +0100 Takashi Iwai o drm/nouveau/disp: Fix missing backlight control on MacBook 5,1
2025-01-05 00:51 +0800 Yuxuan Lin o drm/tests: helpers: Fix compiler warning
2025-01-16 17:02 -0800 Linus Torvalds M- Merge tag 'io_uring-6.13-20250116' of git://git.kernel.dk/linux
2025-01-15 08:39 -0700 Jens Axboe o io_uring/register: cache old SQ/CQ head reading for copies
2025-01-15 08:23 -0700 Jens Axboe o io_uring/register: document io_register_resize_rings() shared mem usage
2025-01-15 07:39 -0700 Jens Axboe o io_uring/register: use stable SQ/CQ ring data during resize
2025-01-14 09:44 -0700 Jens Axboe o io_uring/rsrc: fixup io_clone_buffers() error handling
2025-01-16 16:19 -0800 Linus Torvalds M- Merge tag 'trace-v6.13-rc7' of git://git.kernel.org/pub/scm/linux/kernel/git/trace/linux-trace
2025-01-14 10:12 -0500 Steven Rostedt o trace: Document that multiple function_graph tracing may have different times
2025-01-03 15:00 +0530 Shrikant Hegde o tracing: Print lazy preemption model
2025-01-13 18:31 -0500 Steven Rostedt o tracing: Fix irqsoff and wakeup latency tracers when using function graph
2025-01-16 09:09 -0800 Linus Torvalds M- Merge tag 'net-6.13-rc8' of git://git.kernel.org/pub/scm/linux/kernel/git/netdev/net
2025-01-15 08:14 -0800 Jakub Kicinski o netdev: avoid CF1 problems with sock priv helpers
2025-01-16 12:45 +0100 Paolo Abeni M- Merge branch 'mlx5-misc-fixes-2025-01-15'
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5e: Always start IPsec sequence number from 1
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5e: Rely on reqid in IPsec tunnel mode
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5e: Fix inversion dependency warning while enabling IPsec tunnel
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5: Clear port select structure when fail to create
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5: SF, Fix add port error handling
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5: Fix a lockdep warning as part of the write combining test
2025-01-15 13:39 +0200 Leon Romanovsky o net/mlx5: Fix RDMA TX steering prio
2025-01-15 13:39 +0200 Leon Romanovsky o net: make page_pool_ref_netmem work with net iovs
2025-01-15 13:39 +0200 Leon Romanovsky o net: ethernet: xgbe: re-add aneg to supported features in PHY quirks
2025-01-14 18:47 +0200 Vladimir Oltean o net: pcs: xpcs: actively unset DW_VR_MII_DIG_CTRL1_2G5_EN for 1G SGMII
2025-01-14 18:47 +0200 Vladimir Oltean o net: pcs: xpcs: fix DW_VR_MII_DIG_CTRL1_2G5_EN bit being set for 1G SGMII w/o inband
2025-01-11 18:15 -0300 Victor Nogueira o selftests: net: Adapt ethtool mq tests to fix in qdisc graft
2025-01-13 10:48 -0500 Kevin Groeneveld o net: fec: handle page_pool_dev_alloc_pages error
2025-01-13 17:13 -0800 John Sperbeck o net: netpoll: ensure skb_pool list is always initialized
2025-01-13 11:30 -0500 Sean Anderson o net: xilinx: axienet: Fix IRQ coalescing packet count overflow
2025-01-13 09:10 -0300 Dan Carpenter o nfp: nfp: prevent integer overflow in nfp_bpf_event_output()
2025-01-14 13:41 -0800 Jakub Kicinski M- Merge branch '100GbE' of git://git.kernel.org/pub/scm/linux/kernel/git/tnguy/net-queue
2024-11-05 13:29 +0100 Karol Kolacinski o ice: Add correct PHY lane assignment
2024-11-05 13:29 +0100 Karol Kolacinski o ice: Fix ETH56G FC-FEC Rx offset value
2024-11-05 13:29 +0100 Karol Kolacinski o ice: Fix quad registers read on E825
2024-11-05 13:29 +0100 Karol Kolacinski o ice: Fix E825 initialization
2025-01-14 13:32 -0800 Jakub Kicinski M- Merge branch 'mptcp-fixes-for-connect-selftest-flakes'
2025-01-13 16:44 +0100 Paolo Abeni o selftests: mptcp: avoid spurious errors on disconnect
2025-01-13 16:44 +0100 Paolo Abeni o mptcp: fix spurious wake-up on under memory pressure
2025-01-13 16:44 +0100 Paolo Abeni o mptcp: be sure to send ack when mptcp-level window re-opens
2025-01-14 12:29 +0100 Paolo Abeni M- Merge branch 'vsock-some-fixes-due-to-transport-de-assignment'
main 90f1a0d258b395d8f463e5c24dabe3c8d5d4 - commit 1 of 258600 loading 68s
nothing to enter
local-ringsub 0x1 bash-src 0x2 strace-diff 0x3 gdb-on-bash 0x4 debuggin 0x5 compound 0x6 glibc 0x7 xv6 0x8 -zsh ssh sssing214@s
```