Appendix: List of events which Linux Kernel State Tracer record

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Event type [hex]	Categoly	Mnemonic	Description of events		where to hook	filename	data recorded as "log_arg1	data recorded as "log_arg2	data recorded as "log_arg3	data recorded as "log_arg4	remarks
01	Process management	PROCESS_CONTEXTSWITCH	Process context switching		schedule()	./kernel/sched.c	address of the task_struc of "prev"	address of the task_struc of "next"	prev. process state(value after switch)	prev. process count(value before switch)	from log_arg3, log_arg4, can determain why processes wer switched
02		PROCESS_WAKEUP	WAKEUP		try_to_wake_up()		value of "p" in the functior	synchronous			
03		PROCESS_SIGSEND	sending signal		send_sig_info()	./kernel/signal.c	value of "sig" in the functior	value of "t" in the functior	pointer to info (info)		
04		PROCESS_LTHREADGEN	creating a kernel threac		kernel_thread()	./arch/i386/kernel/process.c	value of "fn" in the functior	pointer to argument of kernel thread (arg	flag		
10	Interrupts	INT_HARDWARE_ENTRY	hardware	entrance	do_IRQ()	./arch/i386/kernel/irq.c	value of "irq" in the functior	interrupt status (status)			
12		INT_TASKLETHI_ENTRY	software	entrance	tasklet_hi_action()	./kernel/softirq.c	value of "t->func" in the functior				
14		INT_TASKLET_ENTRY		entrance	tasklet_action()		value of "t->func" in the functior				
16		INT_BH_ENTRY		entrance	bh_action()		value of "nr" in the functior	address of action (bh_base			
20	Exceptions	EXCEPTION_ENTRY	de	entrance	error_code	./arch/i386/kernel/entry.S	handler address (edi)	error code (esi)	exception occurred address (eip)		
			int3								
			overflow								
			bounds								
			invalid_op								
			double_fault								
			coprocessor_segment_overrun								
			invalid_TSS								
			segment_not_present								
			stack_segment								
			alignment_check								
			coprocessor_erro								
			simd_coprocessor_erro								
			debug								
			general_protectior								
			page_fault								
			machine_check								
			sprious_interrupt_bug								
			device_not_available		device_not_available		the number of this exception				
			nmi		nmi						
21		EXCEPTION_EXIT	device_not_available	exit	device_not_available		handler address				
			nmi		nmi		the number of this exceptior				
			exceptions other than above two		error_code		handler address (edi				
30	System calls	SYSCALL_ENTRY	entrance		beginning of system_call()	./arch/i386/kernel/entry.S	the number of this system call				recording arguments of system calls is optional feature
31		SYSCALL_EXIT	exit		ending of system_call()	./arch/i386/kernel/entry.S	the number of this system call	errno			
40	Filesystems	FS_DEVRW	device IO	creation of request for device	ll_rw_block()	./drivers/block/ll_rw_blk.c	buffer (bh)	READ/WRITE (rw)	num of blocks to transfer (nr)		
41		FS_DEVEND		completion of request for device	end_buffer_io_sync()	./fs/buffer.c	buffer (bh)	uptodate			
42		FS_BUFBUSY		buffer busy wait	__wait_on_buffer()	./fs/buffer.c	buffer (bh)				
50	Memory Management	MEM_SWAPOUT	swap out	exit	try_to_swap_out()	./mm/vmscan.c	pointer to page swapped out (page				
51		MEM_SWAPIN	swap in	exit	do_swap_page()	./mm/memory.c	pointer to page swapped in (page				
52		MEM_DO_NOPAGE	mem_do_nopage	exit	do_no_page()	./mm/memory.c	pointer to page allocated (new_page				
53		MEM_DO_WPPAGE	mem_do_wppage		do_wp_page()	./mm/memory.c	pointer to page (new page				
54		MEM_WAIT_PAGE	mem_wait_page	entrance	__wait_on_page()	./mm/filemap.c	pointer to page (page				
55		MEM_GET_FREEPAGE	mem_get_freepage	exit	__get_free_page()	./mm/page_alloc.c	pointer to page (paddr	type of page (gfp_mask)	the number of page (order	call address	
56		MEM_GET_ZEROPAGE	mem_get_zeropage	exit	get_zeroed_page()	./mm/page_alloc.c	pointer to page (address	type of page (gfp_mask)	call address		
57		MEM_FREEPAGE	mem_freepage	entrance	free_pages()	./mm/page_alloc.c	pointer to (addr)	the number of page (order	call address		
58		MEM_VMALLOC	mem_vmalloc	exit	vmalloc()	./mm/vmalloc.h	address (addr)	size	call address		
59		MEM_VFREE	mem_vfree	entrance	vfree()	./mm/vmalloc.c	address (addr)				
5a		MEM_CACHE_CREATE	mem_cache_create	exit	kmem_cache_create()	./mm/slab.c	name	size	cachep		
5b		MEM_CACHE_ALLOC	mem_cache_alloc	exit	kmem_cache_alloc()	./mm/slab.c	cachep	flags	objp	call address	
5c		MEM_MALLOC	mem_malloc	exit	kmalloc()	./mm/slab.c	cachep	flags	objp	call address	
5d		MEM_CACHE_FREE	mem_cache_free	entrance	kmem_cache_free()	./mm/slab.c	cachep	objp	call address		
5e		MEM_FREE	mem_free	entrance	kfree()	./mm/slab.c	objp	call address			
60	Networking	NET_PKTSEND	sending packets	entrance	dev_queue_xmit()	./net/core/dev.c	skb				
61		NET_PKTSENDI	interrupt on sending packets	entrance	net_tx_action()	./net/core/dev.c	h				
62		NET_PKTRECV	receiving packets	entrance	netif_rx()	./net/core/dev.c	skb				
63		NET_PKTRECVI	interrupt on receiving packets	entrance	net_rx_action()	./net/core/dev.c	h				
64		NET_SOCKETIF	socket()	entrance	sys_socketcall	./net/socket.c	call	args			exit is recorded as exit of system call
70	SysV IPC	SYSV_IPC	IPC functions	entrance	sys_ipc()	./arch/i386/kernel/sys_i386.c	call/first	second/third	*ptr		
80	Locks	LK_SPINLOCK	spin lock	lock	spin_lock()	./include/asm-i386/spinlock.h	address where it was callec	lock			inline
81		LK_SPINTRYLOCK		try lock (exit)	spin_trylock()		address where it was callec	lock	return value		inline
82		LK_SPINUNLOCK		unlock	spin_unlock()		address where it was callec	lock			inline
83		LK_WRLOCK	read/write lock	write lock	write_lock()		address where it was callec	rwlock			inline
84		LK_WRTRYLOCK		write try lock (exit)	write_trylock()		address where it was callec	rwlock	return value		inline
85		LK_WRUNLOCK		write unlock	write_unlock()		address where it was callec	rwlock			define
86		LK_RDLOCK		read lock	read_lock()		address where it was callec	rwlock			inline
87		LK_RDUNLOCK		read unlock	read_unlock()		address where it was callec	rwlock			define
a0	Timer	TIMER_RUN	run timer list		run_timer_list()	./kernel/timer.c	function address(fn)	argument for the function(data			
a1		TIMER_ADD	add to timer list		add_timer()		pointer to timer list (timer)	unexpired term (timer->expires	function address (timer->function)	argument for the function (timer->data	
a2		TIMER_MOD	modify timer list		mod_timer()		pointer to timer list (timer)	unexpired term (timer->expires	function address (timer->function)	argument for the function (timer->data	
a3		TIMER_DEL	delete from timer list		del_timer()		pointer to timer list (timer)	unexpired term (timer->expires	function address (timer->function)	argument for the function (timer->data	
a4		TIMER_DEL_SYNC	delete from timer list with synchronous		del_timer_sync()		pointer to timer list (timer)	unexpired term (timer->expires	function address (timer->function)	argument for the function (timer->data	
b0	Oops	OOPS_PGFAULT	oops in page fault handle	just before the oops operatior	do_page_fault()	./arch/i386/mm/fault.c	address where it was accessed	address where exception occurred	exception error code		
b1		OOPS_NMIWDOG	oops in nmi watchdog timer	just before the oops operatior	nmi_watchdog_tick()	./arch/i386/kernel/nmi.c	address where it was running				
90	Others	O_PORTIN	io commands	port output	__OUT() or between __OUT1() and __OUT2()	./include/asm-i386/io.h	port address/byte width	value to output	address where it was called		inline
91		O_PORTOUT		port input	tail of __IN()		port address/byte width	value to input	address where it was callec		inline
92		O_PANIC	panic			./kernel/panic.c	address of argumen	address where it was callec			
93		O_PRINTK	printk			./kernel/printk.c	address of argumen	address where it was callec			
f00	LKST internal event	LKST_INIT	Progress of LKST initialization process		lkst_init_stage[0-1]()	./driver/lkst/lkst.c	initialization status				
f01		LKST_KERNEL_DUMP	kernel dump event		lkst_dump_notify_handler()	./driver/lkst/lkst.c	dump state	dump device			This event is embeded in LKST. User can't handle it.
f08		LKST_MSET_XCHG	LKST switches the masksets		lkst_evhandlerprim_maskset_xchg_inline()	./driver/lkst/lkst.c	old maskset ID	new maskset ID	pointer to old maskset	poniter to new maskset	Recorded 2 times; before/afte
f10		LKST_BUFF_SHIFT	LKST shifts the buffers		lkst_evhandlerprim_buffer_shift_inline()	./driver/lkst/lkst.c	old buffer ID	new buffer ID	pointer to old buffer	pointer to new buffer	Recorded 2 times; before/afte
f11		LKST_BUFF_OVFLOW	overrun occurred in the current buffer.		lkst_evhandlerprim_entry_next()	./inlude/linux/lkst_private.h	pointer to the buffer				Used for automatically shifting buffer If masked, LKST stops it.
f19		LKST_SYNC_UID	Synchronization with UID		sys_*uid(), set_user()	./kernel/timer.c, sys.c	UID		pointer to the process table		for compensation of dropped log data
f1a		LKST_SYNC_GID	Synchronization with GID		sys_*gid()	./kernel/timer.c, sys.c	GID		pointer to the process table		for compensation of dropped log data
f1b		LKST_SYNC_PGID	Synchronization with PGID		sys_*pgid(), sys_setsid()	./kernel/sys.c	PID	PGRP	pointer to the process table	session leader flag	for compensation of dropped log data
f1c		LKST_SYNC_TID	Synchronization with TID		sys_gettid()	./kernel/timer.c, sys.c	TID(pid)		pointer to the process table		for compensation of dropped log data