"Weekend Workshop on Embedded Linux Kernel Internals" by **Pradeep Tewani**

Day 1

+ Session 1: Getting Comfortable with Embedded Linux Kernel

- Kernel Source organization
- W's of kernel module
- Writing a kernel module
- Building a kernel module
- W's of Character driver
- Kernel build system

+ Session 2: Process Management & Synchronization

- Kernel Threads
- Waiting in Process
- Sleeping & Waking up
- Using the select & poll
- Mutex & Semaphores
- Spinlocks

Day 2

+ Session 3: Kernel Timing Management & Deferred Work

- Timing Architecture
- Ticking in jiffies
- Delaying the process
- Kernel Timers
- Tasklets
- Work Queues

+ Session 4: Interrupt Handling

- Interrupt management in Linux kernel
- Top halves and bottom halves
- Registering and Writing an interrupt handler

+ Wrap Up

- Conclusion
- What Next?

Caution: All sessions are highly interactive & hands-on with Beagle Bone Black.

Hands-On Details

+ *Getting comfortable with Embedded Linux Kernel*

- Writing a simple module for Embedded Linux
- Preparing a kernel for building the modules
- Testing a module on Embedded System
- Adding a menu in Kbuild system
- Compiling a driver statically with kernel image
- Writing a character driver to control the GPIO

+ *Process Management & Synchronization*

- Demonstration on Kernel threads
- Waiting for resources
- Practical usage of select & poll
- Example on concurrency management

+ *Kernel Timing Management*

- Usage of kernel timers
- Delaying the process
- Usage of Tasklets & Workqueues

+ *Interrupt Handling*

- Interrupt handling on embedded system
- Getting an interrupt from the GPIOs