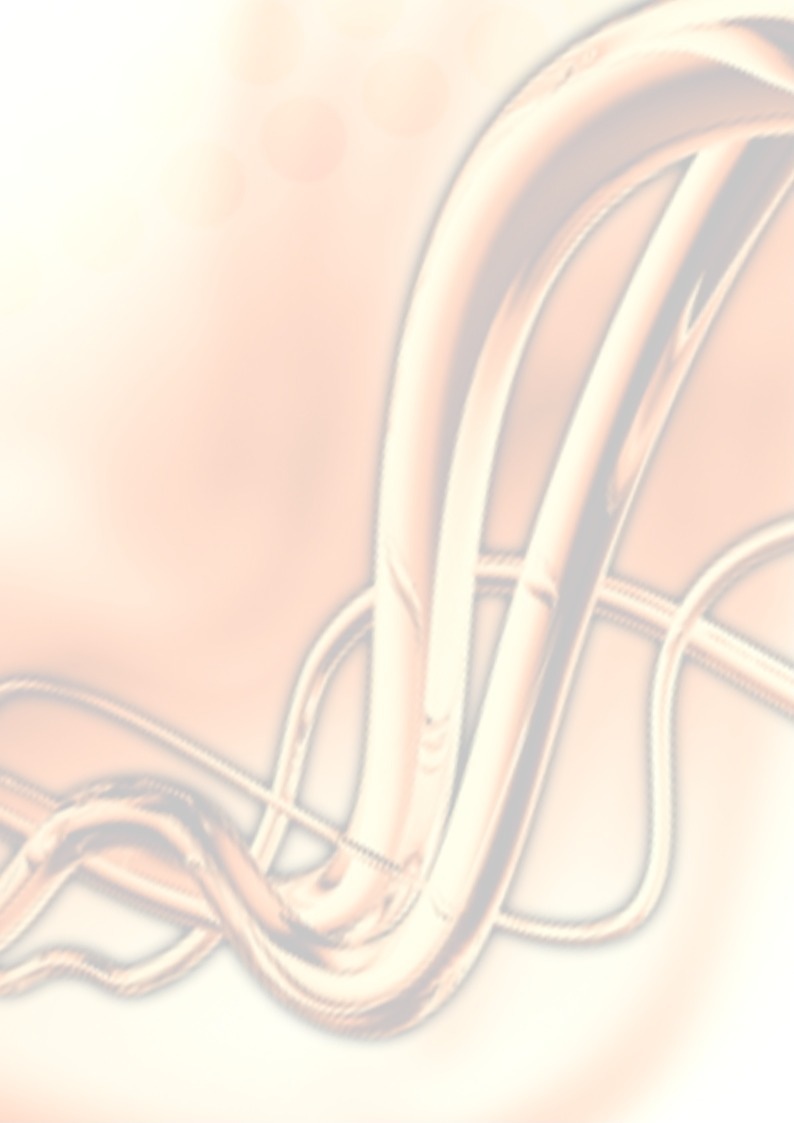
**EEE4084F: Digital Systems**

**Prac 04: QEMU Arm Emulator**

**and Kernel Building**

**Steven Bissett**

**BSSSTE005**

****

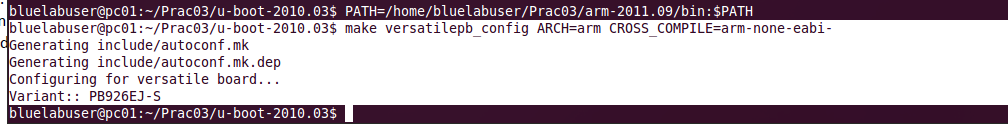
Electrical and Computer Engineering, 4th year

University of Cape Town (UCT)

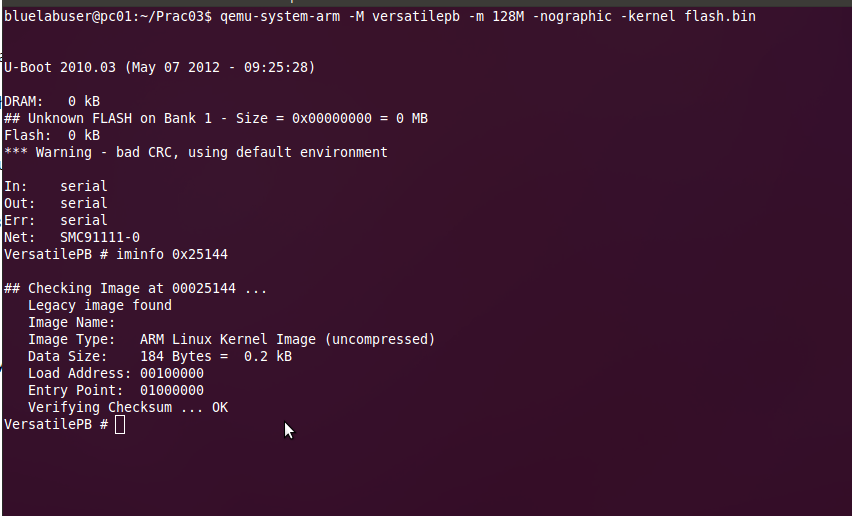
**Submission date:**

11 May 2012

Configuring to cross compile for the versatilePB board: (5 Marks)



Running the binary image: (5 Marks)



Q: What’s the outcome address (2 marks)?

**A: 0x25144**

Q: Is that our test.bin image memory address? How do you know? (3 marks)

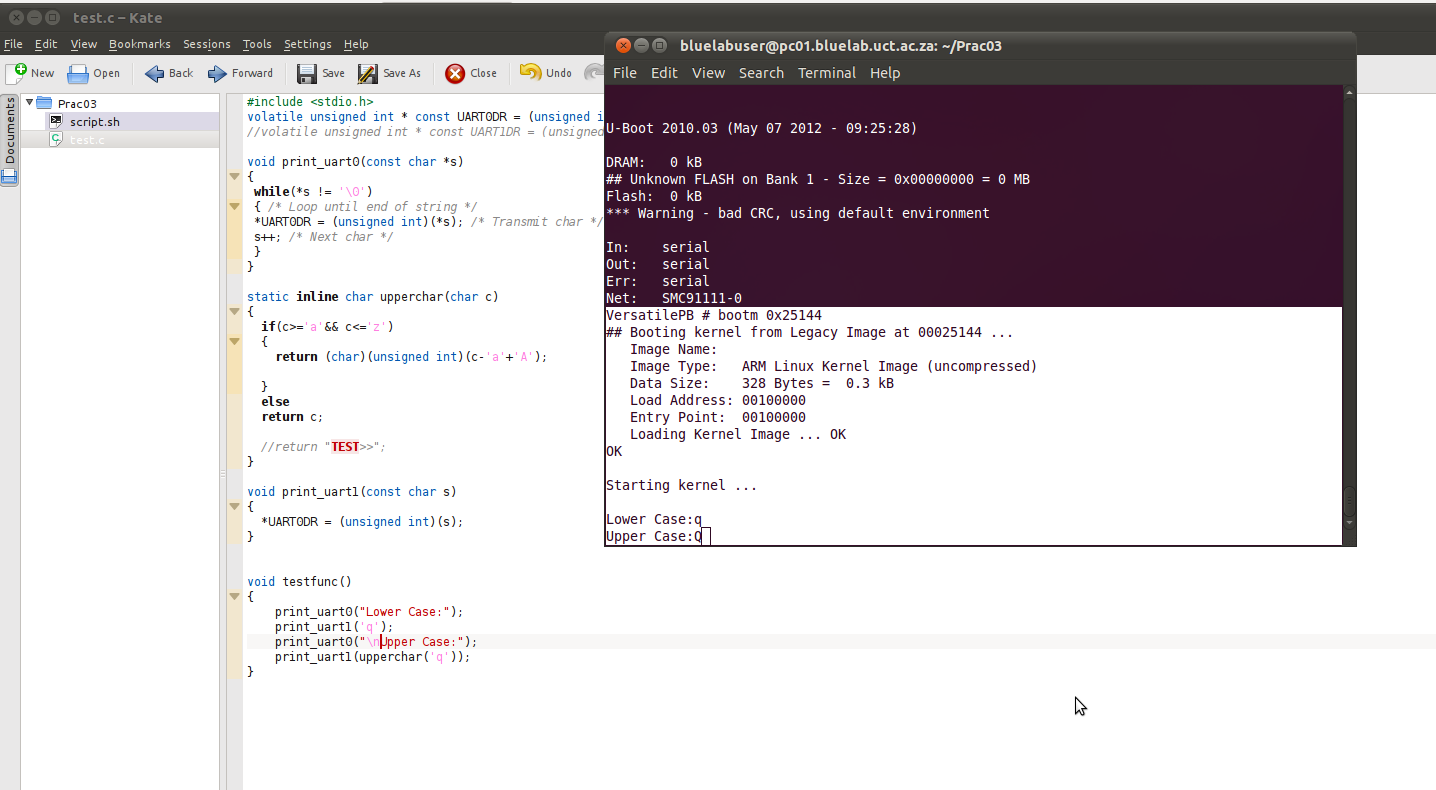
**A: Yes, Image Type at Address 0x25144 is ARM Linux Kernel Image (uncompressed)**

**and filesize of test.bin = 184 bytes (confirmed in Nautilus).**

Cross compile your ARM program as explained in the test program above and boot using the

“bootm” command of the u-boot. (5 Marks)

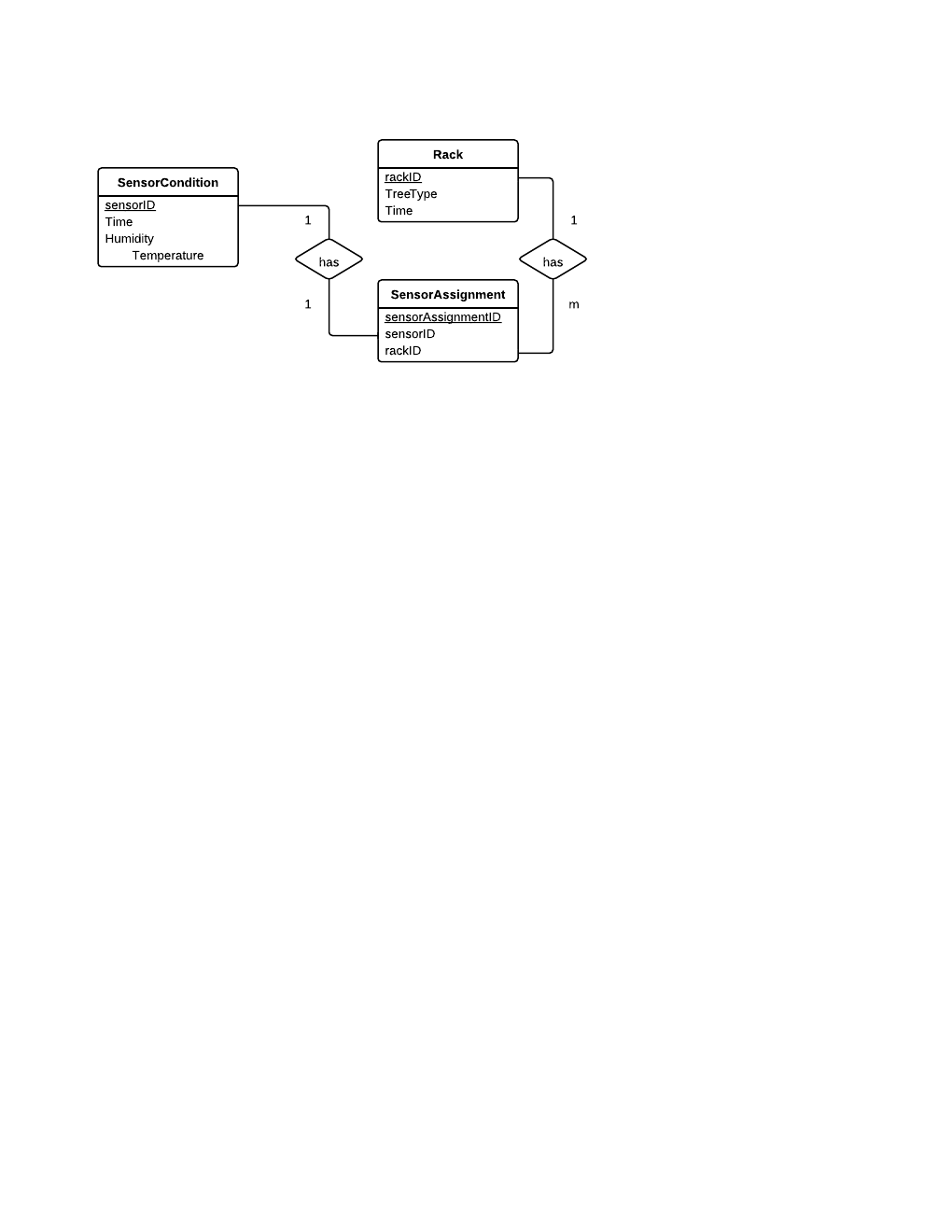
A screenshot is shown below, where the character ‘q’ is converted to its capital ‘Q’.



4. SQLite as an embedded DBMS

Wood Curing Control System Database

Entity Relationship Diagram  
(SQLite)



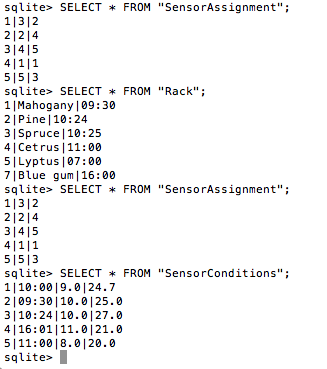
**Queries to create tables:**

CREATE TABLE "Rack" ("rackID" INTEGER PRIMARY KEY NOT NULL , "TreeType" VARCHAR, "Time" TIME)

CREATE TABLE "SensorAssignment" ("sensorAssignmentID" INTEGER PRIMARY KEY NOT NULL , "sensorID" INTEGER, "rackID" INTEGER)

CREATE TABLE "SensorConditions" ("sensorID" INTEGER PRIMARY KEY NOT NULL , "Time" TIME, "Humidity" FLOAT, "Temperature" FLOAT)

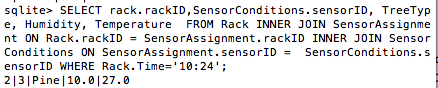
**Screenshot showing queries to show contents from each table:**



The following statement:

SELECT rack.rackID,SensorConditions.sensorID, TreeType, Humidity, Temperature FROM Rack INNER JOIN SensorAssignment ON Rack.rackID = SensorAssignment.rackID INNER JOIN SensorConditions ON SensorAssignment.sensorID = SensorConditions.sensorID WHERE Rack.Time='10:24';

Produces the following output:



rackID: 2

sensorID: 3

TreeType: Pine

Humidity: 10

Temperature: 27.0