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**RTX Project Final Report**

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# 1 Introduction

## 2 Global Variable Documentation

`free_mem`

`gp_currentpcb`

`gp_pcb`

`priority_q`

`g_timer_count`

## **3 Kernel API**

### **3.1 Memory Management**

#### **3.1.1 Request Memory**

#### **3.1.2 Release Memory**

### **3.2 Process Management**

#### **3.2.1 Process Control Block**

#### **3.2.2 Release Processor**

#### **3.2.3 Set Process Priority**

#### **3.2.4 Get Process Priority**

### **3.3 Interprocess Communication**

#### **3.3.1 Send Message**

#### **3.3.2 Receive Message**

#### **3.3.3 Delay Send Message**

## 4 Interrupts and their Handlers/Processes

### 4.1 Timer I-Process

### 4.2 UART I-Process

#### 4.2.1 Debugging Hotkeys

## 5 System and User Processes

### 5.1 System Processes

5.1.1 Null Process

5.1.2 KCD Process

5.1.3 Clock Process

5.1.4 CRT Process

5.1.5 Set Priority Process

### 5.2 User Processes

5.2.1 User Test Process

5.2.2 Stress Test Process



## 6 Initialization

## 7 Testing

### 7.1 Debugging

### 7.2 Timing Analysis

#### 7.2.1 send message

#### 7.2.2 receive message

#### 7.2.3 request memory block

## 8 Major Design Changes

### 8.1 Lessons learned