

# IAS Class Documentation

Source File: IAS.h  
Class Header: class IAS: public Object  
Namespace: cal

## Overview

The *IAS* class holds the memory locations and registers of an IAS computer as *Memory* objects.

## Constructors

- **IAS()** (default constructor)
  - **Purpose:** Assigns zero to the content of every register and memory location of the IAS computer, and deactivates them all.
- **IAS(const IAS& obj)** (copy constructor)
  - **Purpose:** Constructs a deep copy of *obj*.
  - **Parameter(s):**
    - \* *obj*: Constant *IAS* reference object.

## Destructor

- **-IAS()** [virtual]
  - **Purpose:** Does nothing.

## Assignment Operators

- **operator=(const IAS& rhs)**
  - **Purpose:** Constructs a deep copy of *rhs*.
  - **Parameter(s):**
    - [•]
    - \* *rhs*: Constant *IAS* reference object.
  - **Return:** *\*this*.

## Methods

- **operator[](int idx)**
  - **Purpose:** Retrieves the memory location with the index *idx* if *idx* is valid
  - **Parameter(s):**
    - [•]
    - \* *idx*: An integer.
  - **Exception:** Throws out-of-range exception if *idx* not in the range [0,4095]
  - **Return:** A *Memory* reference.
- **operator()(int idx)**
  - **Purpose:** Retrieves the register with the index *idx* where PC, IR, IBR, MAR, MBR, AC, and MQ have indices 0 through 6, respectively.
  - **Parameter(s):**
    - [•]
    - \* *idx*: An integer.
  - **Exception:** Throws out-of-range exception if *idx* not in the range [0,6]
  - **Return:** A *Memory* reference.
- **ToString() const** [overridden]
  - **Purpose:** Provides a string representation of the *IAS* object.
  - **Return:** A string that is a list of all active registers and memory locations.