# DOCUMENTATION

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ENUM LIST:

- PING
- STATUS
- WORKING
- FINISHED
- MATRIX_FIRST_INFO
- MATRIX_FIRST_EL
- MATRIX_SECOND_INFO
- MATRIX_SECOND_EL
- SUCCESSFULLY_SENT
- TAKE_MATRIX_INFO
- SEND_MATRIX_INFO
- TAKE_MATRIX
- REQUEST_STATUS_NUM
- REQUEST_JOB
- STEAL_JOB

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PING

- Send length - 1 byte
- Send format: PING
- Purpose: Check is there slave on given address
- Answer length – 1 byte
- Answer format: PING

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STATUS

- Send length – 1 byte
- Send format: STATUS
- Purpose: Check if microcontroller on given address has finished his job
- Answer length – 1 byte
- Answer format: WORKING or FINISHED

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MATRIX_FIRST_INFO

- Send length – 7 bytes
- Send format: MATRIX_FIRST_INFO + (integer)row + (integer)column + (integer)id row
- Purpose: Send size of the first matrix and which column is on beginning of the data chunk which slave is going to get later.

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MATRIX_FIRST_EL

- Send length – 3 bytes
- Send format: MATRIX_FIRST_EL + (integer)matrix element
- Purpose: Send element from the first matrix.

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MATRIX_SECOND_INFO

- Send length – 7 bytes
- Send format: MATRIX_FIRST_INFO + (integer)row + (integer)column
- Purpose: Send size of the second matrix.

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MATRIX_SECOND_EL

- Send length – 3 bytes
- Send format: MATRIX_SECOND_EL + (integer)matrix element
- Purpose: Send element from the second matrix.

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SUCCESSFULLY_SENT

- Send length – 1 byte
- Send format: SUCCESFULLY_SENT
- Purpose: Check if matrix has been successfully sent.

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TAKE_MATRIX_INFO

- Send length – 1 byte
- Send format: TAKE_MATRIX_INFO
- Purpose: Get the size of receiving matrix and which rows will be sent for result matrix.
- Answer length – 5 bytes
- Answer format: SEND_MATRIX_INFO + (integer)row + (integer)id row

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TAKE_MATRIX

- Send length – 1 byte
- Send format: TAKE_MATRIX
- Purpose: Take each element from the result matrix on slave and put it in the result matrix on master.
- Answer length – 4 bytes
- Answer format: (long)element of the result matrix

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REQUEST_STATUS_NUM

- Send length – 1 byte
- Send format: REQUEST_STATUS_NUM
- Purpose: Get how many rows have left to calculate on the slave.
- Answer length – 3 bytes
- Answer format: REQUEST_STATUS_NUM + (integer)rows left

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REQUEST_JOB

- Send length – 1 byte
- Send format: REQUEST_JOB
- Purpose: Get info about the matrix you are going to steal from slave.
- Answer length – 5 bytes
- Answer format: SEND_MATRIX_INFO + (integer)row + (integer)id row

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STEAL_JOB

- Send length – 1 byte
- Send format: STEAL_JOB
- Purpose: Steal each element from the selected rows in the first matrix on slave and put it in the result matrix on master.
- Answer length – 2 bytes
- Answer format: (integer)element of the first matrix

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COMMUNICATION EXAMPLE:

Master → Slave I | PING
Master ← Slave I | PING
Master → Slave II | PING
Master ← Slave II | PING
Master → Slave I | MATRIX_FIRST_INFO + INTEGER + INTEGER + INTEGER
Master → Slave I | MATRIX_FIRST_EL + INTEGER
Master → Slave I | MATRIX_FIRST_EL + INTEGER
Master ← Slave I | SUCCESSFULLY_SENT
Master → Slave I | MATRIX_SECOND_INFO + INTEGER + INTEGER
Master → Slave I | MATRIX_SECOND_EL + INTEGER
Master → Slave I | MATRIX_SECOND_EL + INTEGER
Master → Slave I | MATRIX_SECOND_EL + INTEGER
Master → Slave I | MATRIX_SECOND_EL + INTEGER
Master ← Slave I | SUCCESSFULLY_SENT
Master → Slave II | MATRIX_FIRST_INFO + INTEGER + INTEGER + INTEGER
Master → Slave II | MATRIX_FIRST_EL + INTEGER
Master → Slave II | MATRIX_FIRST_EL + INTEGER
Master → Slave II | MATRIX_SECOND_INFO + INTEGER + INTEGER
Master → Slave II | MATRIX_SECOND_EL + INTEGER
Master → Slave II | MATRIX_SECOND_EL + INTEGER
Master → Slave II | MATRIX_SECOND_EL + INTEGER
Master → Slave II | MATRIX_SECOND_EL + INTEGER
Master ← Slave II | SUCCESSFULLY_SENT
Master → Slave I | STATUS
Master ← Slave I | WORKING
Master → Slave II | STATUS
Master ← Slave II | WORKING
Master → Slave I | STATUS
Master ← Slave I | FINISHED
Master → Slave I | TAKE_MATRIX_INFO
Master ← Slave I | SEND_MATRIX_INFO
Master ← Slave I | INTEGER + INTEGER
Master → Slave II | REQUEST_STATUS_NUM
Master ← Slave II | REQUEST_STATUS_NUM + INTEGER
Master → Slave II | REQUEST_JOB

# DOCUMENTATION

Master ← Slave II | SEND_MATRIX_INFO + INTEGER + INTEGER
Master → Slave II | STEAL_MATRIX
Master ← Slave II | INTEGER + INTEGER
Master → Slave I | MATRIX_FIRST_INFO + INTEGER + INTEGER + INTEGER
Master → Slave I | MATRIX_FIRST_EL
Master → Slave I | MATRIX_FIRST_EL
Master ← Slave I | SUCCESSFULLY_SENT
Master → Slave II| STATUS
Master ← Slave II| WORKING
Master → Slave I | STATUS
Master ← Slave I | FINISHED
Master → Slave I | TAKE_MATRIX_INFO
Master ← Slave I | SEND_MATRIX_INFO
Master ← Slave I | INTEGER + INTEGER
Master → Slave II | REQUEST_STATUS_NUM
Master ← Slave II | REQUEST_STATUS_NUM + INTEGER
Master → Slave II | STATUS
Master ← Slave II | FINISHED
Master → Slave II | TAKE_MATRIX_INFO
Master ← Slave II | SEND_MATRIX_INFO
Master ← Slave II | INTEGER + INTEGER
Master → Slave I | REQUEST_STATUS_NUM
Master ← Slave I | REQUEST_STATUS_NUM + INTEGER
Master → Slave I | PING
Master → Slave II | PING