

# COMP110 WORKSHEET 9: TIS-100

Version 4.0  
Computing  
COMP110

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## Introduction

**TIS-100** is a puzzle game released in 2015 by independent developers Zachtronics, who you will remember from Worksheet 1 as the developers of SpaceChem. The gameplay consists of writing assembly code for a fictional parallel computer architecture, and as such requires skills in low-level programming.

To complete this worksheet:

- (a) **Play** TIS-100 — it is available on the PCs in the Games Academy, or can be purchased from popular game stores (Steam, GOG, Humble, itch.io) for around £5;
- (b) **Complete** the first thirteen levels of the game, upto and including “Signal Multiplier”;
- (c) **Complete** the optional stretch goals.

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*“The Tesselated Intelligence System is a massively parallel computer architecture comprised of non-uniformly interconnected heterogeneous nodes. The Tesselated Intelligence System is ideal for applications requiring complex data stream processing, such as automated financial trading, bulk data collection, and civilian behavioural analysis.”*

— TIS-100 Reference Manual

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## Submission instructions

There is **no formative submission** for this worksheet — you will submit your work as part of your summative submission of the nine COMP110 worksheets.

Play TIS-100. When you are ready to prepare your work for submission, click the “Open Save Directory” button within the game (on the level select screen), and navigate up one directory. You should now be in a directory whose name is a long string of numbers. Add the contents of this directory, including the save.dat file and the saves directory, to your summative submission. Please see the instructions and video on LearningSpace for further details on preparing your summative submission.

## Marking criteria and stretch goals

The basic task for this worksheet is to complete the first 13 non-sandbox levels of the game, upto and including “Signal Multiplier”. Partial credit will be awarded for completing some portion of these levels — if you are stuck on a particular level, skip it and carry on to solve the rest.

You are **not** marked on the quality of your solutions, just on how many levels you are able to complete.

The in-game manual is essential reading to understand how to solve the puzzles. You may look for help online, but resist the temptation to copy solutions — the markers reserve the right to deduct marks if it is clear that you do not understand your solutions or if they are suspiciously similar to solutions that can be found online.

Extra marks are available for completing one or more of the following **stretch goals**:



TIS-100 is a puzzle game in which players must write assembly code to process data streams in increasingly complex ways.

- Solve "Differential Converter" in 210 cycles or fewer;
- Solve "Sequence Counter" in 4 nodes or fewer;
- Continue progressing through the game to unlock the bottom row of the level select screen, and solve "Sequence Sorter". (I was stuck on this level for several weeks when I first played TIS-100!)