

Technical Description

Computer Assembly

Skill 04



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1 Skill Overview

1.1 Skill Name and Category

Computer Assembly, ICT

1.2 Number of Competitors

This is an individual Skill Competition with one competitor.

1.3 Competition Time

The total competition time is 6 hours and is divided into the following modules:

- Module A: Computer Assembly and Hardware Configuration
- Module B: System Installation and Configuration

Competitors may divide the total competition time between the two modules as they choose.

1.4 Description of the Skill

Computer Assembly focuses on building, configuring, and upgrading personal computer systems to meet technical specifications. Competitors select and install compatible hardware, configure firmware, install operating systems and software, and set up storage, networking, peripherals, cooling, and airflow.

The skill combines hands-on assembly and hardware configuration with sustainable working practices, system configuration, troubleshooting, performance optimisation, and testing to deliver a stable, reliable, and professionally finished computer system.

Success requires technical precision, problem-solving, and an understanding of computer hardware, operating systems, system integration, thermal management, and build quality, including familiarity with OEM workstation systems and their manufacturer-specific designs.

2 Task Assignment Overview

2.1 Task Assignment Description and Familiarisation Session

The Task Assignment is the main competition task used to assess the competitors' skills. It defines what the competitors must complete during the competition and forms the basis for all assessments. The final result is evaluated only on the finished work produced during the official competition time.

A familiarisation session is organised on C-1. During this session, competitors may enter the workshop, see the workspace, check the available tools and materials, and ask questions about procedures or practical arrangements. Competitors are not allowed to practise, start, or rehearse any part of the Task Assignment during this session.

2.2 Task Assignment Structure

The competition consists of two modules. Competitors may divide the total competition time of 6 hours between the two modules as they choose.

Module A: Computer Assembly and Hardware Configuration

- Assemble or configure a computer system according to the given specifications, using the components and equipment provided.
- Select appropriate and compatible components from those provided, considering any required upgrades or replacements.
- Install, remove, or connect the required computer components.
- Configure the computer hardware according to the given requirements.
- Verify correct hardware detection and operation and present the completed computer.

Module B: System Installation and Configuration

- Install and configure the operating system according to the given specifications.
- Install the required drivers, updates, software, and system utilities.
- Connect and configure the required computer peripherals.
- Configure the system according to the given requirements.
- Verify hardware and system functionality.
- Prepare the completed system for customer handover.

The Task Assignment may include variations, modifications, or additional requirements within the scope of the skill.

If competitors are divided into groups, each group completes an equivalent Task Assignment of the same difficulty level. Hardware components, configurations, or specific tasks may differ between groups while maintaining equivalent requirements and difficulty to ensure fairness and confidentiality.

2.3 Task Assignment Technical Requirements

Computer Assembly requires the following technical skills and competencies:

Module A: Computer Assembly and Hardware Configuration

- ESD protection and safe working practices
- Responsible use of materials, including appropriate sorting of reusable and recyclable materials

- Identification of computer components and understanding their purpose
- Familiarity with OEM workstation systems and their manufacturer-specific hardware designs and installation procedures
- Installation, removal, and connection of required computer components according to the supplied workstation design and task requirements
- Processor and processor cooler handling, installation, and maintenance, including thermal compound application
- Cooling and airflow configuration
- Cable management
- UEFI/firmware configuration
- Hardware and assembly troubleshooting
- Hardware detection and functionality verification

Module B: System Installation and Configuration

- UEFI/firmware configuration for operating system installation
- Operating system installation and configuration
- Installation of drivers, updates, software, and system utilities
- Computer peripheral configuration
- Storage, networking, security, user account, and backup configuration
- System performance optimisation through UEFI/firmware and system settings
- System troubleshooting
- Hardware and system functionality verification
- Stability and performance testing
- The Task Assignment defines the exact competition requirements, which may include additional technical requirements, mandatory assembly or configuration tasks, and skill-specific variations.

3 Materials and Equipment

3.1 Materials and Equipment Provided by the Competition Organiser

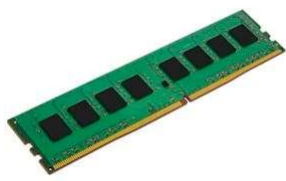
The Organiser provides the materials, tools, and equipment listed below.

Images are for reference only. They do not indicate a specific brand or model unless otherwise stated in the specifications. Quantities are per competitor unless otherwise stated.

Items will be available at the competitor's workstation or in the designated competition area, as appropriate. Where exact brands, models, or task-specific material details are not specified, these may be confirmed before the competition or defined in the Task Assignment, as appropriate.

No.	Equipment / Material	Picture	Specifications	Quantity
01	Phillips screwdriver		PH2, magnetic tip	1
02	Small Phillips screwdriver		PH1, magnetic tip	1
03	Anti-static wrist strap (ESD)		ESD protection	1
04	Thermal compound		1 g, suitable for CPU application	1

No.	Equipment / Material	Picture	Specifications	Quantity
				
05	CPU cleaning wipes		Suitable for thermal compound removal	1
06	Microfiber cleaning cloth		Lint-free	1
07	Reusable cable tie		Suitable for computer cable management	3
08	Extension cord		Suitable for computer equipment	1
09	AC power cable		Suitable for computers and displays	2

No.	Equipment / Material	Picture	Specifications	Quantity
				
10	Workstation		OEM workstation platform, including chassis, manufacturer-specific system board, power supply and cooling system	1
13	Central processing unit (CPU)		Workstation processor compatible with the supplied system.	1
14	CPU cooler		Air cooler, compatible with the selected CPU and chassis	1
16	System memory (RAM)		A matched kit of desktop workstation memory modules, compatible with the supplied system	1
17	Graphics card (GPU)		Compatible PCIe graphics card	1

No.	Equipment / Material	Picture	Specifications	Quantity
				
18	Internal storage drive:		M.2 PCIe NVMe SSD	1
19	HDD storage drive		3.5-inch SATA	1
20	SATA data cable		Suitable for 3.5-inch SATA storage drive	1
21	Mouse		USB, wired	1
22	Keyboard		USB, wired. Finnish QWERTY layout	1

No.	Equipment / Material	Picture	Specifications	Quantity
				
23	Monitor		27", 1080p Full HD resolution or higher, HDMI/DisplayPort	1
24	Display cable		HDMI or DisplayPort	1
25	Operating system installation media		USB 3.x or faster, bootable installation media	1
26	Chair		Height-adjustable office chair	1
27	Desk		Height-adjustable desk, 160 x 80 cm	1

No.	Equipment / Material	Picture	Specifications	Quantity
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3.2 Materials and Equipment Supplied by Competitors

Competitors may bring only the materials, tools, and equipment listed below. Personal tools and equipment must fit within a toolbox or tool case suitable for checked luggage, with a maximum total weight of 23 kg, including the toolbox or case. This requirement does not apply to clothing, footwear, personal protective equipment (PPE), or equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.

Images are for reference only. They do not indicate a specific brand or model unless the specifications state otherwise. Quantities are per competitor unless otherwise stated.

No.	Equipment / Material	Picture	Specifications	Quantity
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01 Keyboard



USB, wired, with the competitor's regional keyboard layout. No internal memory or data storage capability.

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3.3 Prohibited Materials and Equipment

Competitors may use only the materials, tools, and equipment listed in Sections 3.1 and 3.2, unless otherwise authorised by the Skill Manager or Chief Judge. This restriction does not apply to clothing, footwear, or personal protective equipment (PPE) required in Section 4.1, or to equipment required due to the competitor's condition or special needs and agreed in advance with the Organiser.

All other materials, tools, and equipment are not permitted.

4 Skill-Specific Requirements

4.1 Skill-Specific Requirements

The Skill-Specific Requirements below apply to this Skill Competition and must be followed in addition to the Abilympics Competition Rules. The Skill Manager or Chief Judge may provide additional instructions, as needed, to ensure the competition is conducted safely and fairly.

Topic	Skill-Specific Requirements
Materials and tools provided by the Organiser	Competitors must check all materials, tools, equipment, and components before the competition begins. If any item is missing, damaged, or defective, competitors must immediately inform the Judges. No replacements will be provided once competition time has commenced, unless authorised by the Judges. If equipment provided by the Organiser fails during the competition and the failure is confirmed not to have been caused by the competitor, the Chief Judge may grant additional time. If a component fails or becomes defective during the competition, the competitor must immediately inform the Judges. The Chief Judge and Skill Manager will determine the appropriate action, including whether the component may be replaced.
Use of personal tools	Competitors may bring and use only the personal tools and equipment specified in Section 3.2. All other personal tools and equipment are prohibited, except for equipment required due to a competitor's condition or special needs and approved in advance by the Organiser. A personal USB keyboard with a keyboard layout appropriate to the competitor's country or language is permitted. The keyboard must not contain internal memory, programmable macro functionality, data storage capability, or wireless communication features.
Personal protective equipment (PPE)	PPE is not required for this skill.
Clothing / Uniform	There is no mandatory uniform. Competitors must wear neat, comfortable clothing suitable for computer assembly work. Clothing must allow the competitor to work safely and effectively at the workstation and must be compatible with the use of an ESD wrist strap. Clothing must not display large commercial logos or promotional branding. Small, non-distracting brand marks are permitted.
Sideline coaching	Competitors must remain at their workstations or within the designated competition area during competition time, unless authorised to leave by the Judges. Competitors may not communicate

Topic	Skill-Specific Requirements
	with other competitors or members of the public during competition time. Competitors may communicate with Judges, Interpreters, personal assistants, and other authorised persons when required. The role and permitted involvement of a personal assistant must be agreed in advance with the Organiser based on the competitor's condition or special needs.
Use of technology	The Task Assignment will specify whether Internet access and AI tools are allowed during the competition. Competitors may not use personal laptops, tablets, mobile phones, smartwatches, or other personal communication or electronic devices during competition time. Competitors must store such devices away and may access them only during the lunch break or at the end of the competition day. This restriction does not apply to devices required due to the competitor's condition or special needs and agreed in advance with the Organiser. Judges and Interpreters may use devices required for their official duties only as agreed by the Skill Manager and the Chief Judge. The Skill Manager and the Chief Judge may use devices required for competition management and will specify any additional restrictions or permitted device use within the competition area.

5 Assessment Framework

5.1 Assessment Principles

All Abilympics Skill Competitions are marked out of 100 points.

Points are divided between criteria that reflect the required skills and expected outcomes.

Two methods of assessment are used:

- **Measurement:** objective, factual scoring (e.g., size, accuracy).
- **Judgement:** expert evaluation of quality, technique, and artistic choices.

5.2 Assessment Areas

Detailed marking criteria and scoring are provided in the Task Assignment.

Assessment focuses on the following key areas:

Assessment Area	Points
Preparation and ESD Safety	5
Hardware Assembly and Installation	40
Cable Management and Airflow	10
System Installation and Configuration	35
Testing and Verification	10
Total	100