

Low-Cost Desktop PC for an Elderly User Task one two.docx

by George Stefanov

Submission date: 12-Jan-2024 03:21PM (UTC+0000)

Submission ID: 221767178

File name: 51631_George_Stefanov_Low-Cost_Desktop_PC_for_an_Elderly_User_Task_one_two.docx_547275_1116448683.docx (115.32K)

Word count: 1689

Character count: 14459



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Low-Cost Desktop PC for an Elderly User

(CERTHE) Computer Systems Fundamentals (ACCA4028)

George Stefanov
2317823@student.uwtsd.ac.uk

This project is submitted in partial fulfilment of the requirements for the Certificate of Higher Education CERTHE Digital Skills.

Task 1 and Task 2

11.01.2024

Task one:

Table of Contents Task one

1	Introduction
2	Requirements Analysis
3	Hardware Specification
1	CPU and Motherboard
2	Memory
3	Storage
4	Graphics
5	Case and Power Supply
6	Monitor
7	Networking
4	Software Specification
1	Operating System
2	Productivity Software
3	Internet Security
5	Proposed System Configuration
1	Component Selection
2	Shopping List
3	Total Cost
6	Conclusion
7	References
8	Abstract

1. Introduction

The purpose of this document is to specify a suitable low-cost desktop PC configuration for an elderly relative based on the use case scenario provided. The essential requirements are a small form factor system, full-size keyboard, decent monitor for eyesight, ability to perform basic tasks like word processing, email, web browsing, video calling and YouTube, and include security software.

2. Requirements Analysis

Based on the described use case, the proposed system needs:

Small form factor case to save space

Full-size keyboard for comfort during typing/course activities

Large monitor (19"+) to accommodate eyesight needs

A CPU and motherboard capable of handling basic productivity tasks and video smoothly

Enough memory (RAM) to run applications like word processing and web browsing concurrently

Adequate storage for documents, photos and downloaded content

Onboard graphics or separate GPU suitable for HD video playback and calls

Reliable power supply in a small case form factor

Wired network port for reliable internet connectivity

Latest Windows OS for course activities and modern software support

Productivity apps like a browser, email client for tasks

Security software to protect from viruses and hijacking

3. Hardware Specification

3.1 CPU and Motherboard

An Intel Core I3 10100 processor provides more than enough power for basic tasks, including integrated graphics for video needs.

The Gigabyte H410M H motherboard was chosen as it is compact, supports the chosen i3 CPU out of the box, has onboard Wi-Fi/Bluetooth and plenty of ports in a mITX form factor.

3.2 Memory

8GB of DDR4 RAM is sufficient for basic multitasking like documents and a few browser tabs open concurrently.

3.3 Storage

A 500GB SSD provides plenty of fast storage for the user's documents, applications and downloaded content without getting full too quickly.

3.4 Graphics

The integrated Intel UHD Graphics 630 or AMD Radeon Vega 8 graphics on the CPU can smoothly play HD YouTube videos and video calls. No dedicated GPU is needed.

3.5 Case and Power Supply

The Cooler Master Elite 130 Mini ITX case was selected as it is compact yet has room for all components, includes a 300W 80+ Bronze PSU and has plenty of ventilation.

3.6 Monitor

A 1080p 22" HP display was chosen as it has a crisp Full HD resolution at a decent screen size suitable for eyesight needs while keeping within budget limitations.

3.7 Networking

The onboard Intel Wi-Fi 6 AX201 and Bluetooth on the motherboard provides reliable wireless connectivity needed. An RJ45 port is also included for a wired internet connection.

4. Software Specification

4.1 Operating System

Windows 10 Home was selected as it provides the latest OS features and support for productivity apps, has good compatibility and includes the Windows courses the user wishes to join.

4.2 Productivity Software

Chrome web browser, Thunderbird email client and LibreOffice office suite are included for essential internet, email and document needs. All have simple, intuitive interfaces.

4.3 Internet Security

Avast Antivirus provides real-time protection from viruses, ransomware, malware and network threats in a simple, user-friendly interface at no ongoing subscription cost.

5. Proposed System Configuration

5.1 Component Selection

The following individual components were selected based on the above analysis:

- [1] Intel Core i3-10100 Processor 110.73-pound sterling
- [2] Gigabyte H410M H Micro-ATX Motherboard 65.19-pound sterling
- [3] 8GB DDR4 2666MHz RAM 18.96-pound sterling
- [4] 512GB Western Digital Blue SN550 NVMe SSD 41.80-pound sterling
- [5] Cooler Master Elite 130 Mini ITX Case 32.99-pound sterling
- [6] Cwt 300W 80Mm Silent Fan 80 Plus Bronze 45.15-pound sterling
- [7] 22" HP 1080p Display 50.00-pound sterling.
- [8] TP-Link Archer T3U USB Wi-Fi Adapter 27.65-pound sterling
- [9] Logitech MK270 Wireless Keyboard & Mouse 19.99-pound sterling
- [10] Windows 10 Home 64.89-pound sterling

5.2 Shopping List

See the attached components list with prices sourced from the internet. Sites like Amazon or E-bay are used. Links are added to the references list.

5.3 Total Cost

The total cost of the proposed system configured from the above components is 443.35 pounds sterling, coming in well under the budget.

6. Conclusion

This report has proposed and justified a low-cost desktop PC system configuration suitable for the use case requirements of providing an elderly relative with a machine for basic tasks like word processing, email, web browsing, video calls and online course activities. Emphasis was placed on a small form factor, decent-sized monitor, and including security software. The proposed system comes in under budget while utilising reliable, compatible components to meet performance and connectivity needs.

7 References

- [1] https://www.amazon.co.uk/Intel-i3-10100-3-60GHz-Socket-LGA1200/dp/B0883MTJSR/ref=asc_df_B0883MTJSR/?tag=googshopuk-21&linkCode=df0&hvadid=427946995565&hvpos=&hvnetw=g&hvrnd=9097698427891498076&hvpone=&hvtwo=&hvt=&hvdvcmdl=&hvlocint=&hvlocphy=1006567&hvtargid=pla-929722400814&psc=1&mcid=a57bf72548dc366e8d34b73be38b8fac&tag=&ref=&adgrpid=99265838843&hvpone=&hvtwo=&hvdvcmdl=&hvlocint=&hvlocphy=1006567&hvtargid=pla-929722400814
- [2] https://www.amazon.co.uk/Gigabyte-H410M-V2-Micro-Motherboard/dp/B0921LMZL2/ref=asc_df_B0921LMZL2/?tag=googshopuk-21&linkCode=df0&hvadid=500825333468&hvpos=&hvnetw=g&hvrnd=10412498906757349664&hvpone=&hvtwo=&hvt=&hvdvcmdl=&hvlocint=&hvlocphy=1006567&hvtargid=pla-1292340858200&psc=1&mcid=c1c3fe2b50a331baa4fbd12a64efbd9
- [3] https://www.amazon.co.uk/Crucial-CT8G4DFRA32A-Desktop-Memory-Green/dp/B08C4VHQV2/ref=asc_df_B08C4VHQV2/?tag=googshopuk-21&linkCode=df0&hvadid=463101353478&hvpos=&hvnetw=g&hvrnd=5105598047279136256&hvpone=&hvtwo=&hvt=&hvdvcmdl=&hvlocint=&hvlocphy=1006567&hvtargid=pla-937579248689&psc=1&mcid=66f9a2a0f1f63847a1354ecac9691756&th=1&psc=1
- [4] https://www.amazon.co.uk/WD-BLUE-SN570-500GB-2280-speed/dp/B07YFF3JCN/ref=sr_1_2?crid=118TNR6TT1A1T&dib=eyJ2IjojMSJ9.xe5G0CHG9V5RThBoxTzjKb45O8OonfuA4J7BcOl-hr5DCWqVQ6HczunkYaElvQzvyHTWuM07jUYb3aw-lqLPBQ.itOxa5r6BbopWTuClJZu3UjRUntJ5rZ4x389coRBk&dib_tag=se&keywords=512GB%2BWestern%2BDigital%2BBlue%2BSN550%2BNVMe%2BSSD&qid=1704928785&s=computers&sprefix=512gb%2Bwestern%2BDigital%2Bblue%2BSn550%2BNvme%2Bssd%2Ccomputers%2C369&sr=1-2&th=1
- [5] https://www.ebay.co.uk/itm/305327901734?chn=ps&_ul=GB&norover=1&mkevt=1&mkrid=710-134428-41853-0&mkcid=2&mkscid=101&itemid=305327901734&targetid=1405537545018&device=c&mkttype=pla&googleloc=1006567&poi=&campaignid=17218284410&mkgroupid=142217514411&rlsatarget=aud-1657461041468:pla-1405537545018&abclid=9300867&merchantid=119404420&gclid=Cj0KCQiAnfmsBhDfARIsAM7MKi0VyzG11VcdwUrpChNtM42BsQcQpVPSKg286lljDBnw9tyxLj--bIaAuibEALw_wcB
- [6] https://www.ebay.co.uk/itm/315082612616?chn=ps&_ul=GB&norover=1&mkevt=1&mkrid=710-134428-41853-0&mkcid=2&mkscid=101&itemid=315082612616&targetid=602114963966&device=c&mkttype=pla&googleloc=1006567&poi=&campaignid=10215174691&mkgroupid=101743826083&rlsatarget=pla-602114963966&abclid=1063846&merchantid=7260914&gclid=Cj0KCQiAnfmsBhDfARIsAM7MKi1y8ZWu_PBMPHumXJC6AV2pnUuhLAN66-Uhbe8Xjv6QvOyKtpt17UaAIXPEALw_wcB
- [7] https://www.ebay.co.uk/itm/186239454087?var=0&mkevt=1&mkcid=1&mkrid=710-53481-19255-0&campid=5338749390&toolid=20006&customid=GB_58058_186239454087.148415573648-2062963757952-g_Cj0KCQiAnfmsBhDfARIsAM7MKi0TFBsJuNlpNm9F97AbU1HJATFbTvRpDUsMsAJA9vba1t1XbkX2aOoaAmHgEALw_wcB
- [8] https://www.ebay.co.uk/itm/196152437298?chn=ps&_ul=GB&_trkparms=ispr%3D1&amdata=enc%3A1FR0Ksur_QpWBr-t-ESZWA47&norover=1&mkevt=1&mkrid=710-134428-41853-0&mkcid=2&mkscid=101&itemid=196152437298&targetid=1647205088760&device=c&mkttype=pla&googleloc=1006567&poi=&campaignid=17206177401&mkgroupid=136851690655&rlsatarget=aud-1657461041468:pla-1647205088760&abclid=9300866&merchantid=7260914&gclid=Cj0KCQiAnfmsBhDfARIsAM7MKi0IfkLziLbQhZidqe6t665L9wCy26mAe19aKW7LFCQQyS7XJ7Mah8aAp2IEALw_wcB
- [9] https://www.amazon.co.uk/Logitech-Wireless-Keyboards-Windows-Connection/dp/B00CL6353A/ref=asc_df_B00CL6353A/?tag=googshopuk-21&linkCode=df0&hvadid=310665672682&hvpos=&hvnetw=g&hvrnd=2455458133701924175&hvpone=&hvtwo=&hvt=&hvdvcmdl=&hvlocint=&hvlocphy=1006567&hvtargid=pla-563627489945&psc=1&mcid=2268b010b4fd30cd9bcfb4ec92a42c88&th=1&psc=1
- [10] https://www.ebay.co.uk/itm/296051561965?mkevt=1&mkcid=1&mkrid=710-53481-19255-0&campid=5338365712&toolid=20006&customid=EB174873450&amdata=enc%3A1EwHfXq6QT8mEySc6cWaA0Q61&_trkparms=ispr%3D1

8 Abstract

Gloria's Gentle Desktop

My dear Gloria expressed a wish for a kindly computer companion. Though technology moves fast, her needs remain simple - letters from loved ones, visits from afar through her screen's window, courses teaching tricks her curious mind enjoys.

With care and care taken, parts were chosen with Gloria in mind. A thoughtful processor and friendly motherboard ensure snapshots stay shared and Skype calls flow smooth. Generous memory holds word puzzles and stories close, while ample storage safely keeps treasures from years gone by.

A compassionate case cradles components with ventilation, laying gently on her workroom's edge. Through a cord or wireless waves, connection to the outside world brings smiles. Windows welcomes Gloria to workshops tailored for learners, led by guides with patience matching her pace.

Apps like email ferry notes to and from, a browser expands her world with shopping visits and news of changing times. Yet precautions quietly patrol, keeping intrusions and invasions out - her serenity and security protected each day.

This modest machine aims not to amaze but to assist - a calm companion as she explores, encourages her interests and soothes solitary hours. May it bring Gloria years of comfort, enrichment, and joy through whatever connections she seeks each day.

Task two;

Analysis of an HP Laptop PC 15s-fq2000

By

George Stefanov

2317823@student.uwtsd.ac.uk

Task two:

Table of Contents Task two

I. Introduction.....1

II. Primary Uses and Specifications.....2

 A. Primary Uses.....2

 B. Detailed Specifications.....3

III. Performance Analysis.....5

 A. CPU & Storage Benchmarks.....5

 B. Graphics Capabilities.....6

 C. Display & Ports Assessment 7

 D. Battery Life & Ergonomics.....8

IV. Conclusion.....9

References.....10

I. Introduction

This report provides an in-depth technical analysis of the HP Laptop PC 15s-fq2000. As the laptop is not personally owned, the analysis will be based on researching publicly available specifications, benchmarks and user reviews reported online. Adequate background research was conducted using sources such as [notebookcheck.net](https://www.notebookcheck.net), [techadvisor.com](https://www.techadvisor.com) and Intel's processor datasheets to enhance knowledge and understanding of this device's capabilities and performance.

II. Primary Uses and Specifications

A. Primary Uses

The HP 15s-fq2000 appears aimed at basic general usage, suitable for tasks like web browsing, document editing, media consumption and light programming.[1] Its affordable price point targets students and budget-conscious users seeking an entry-level machine for casual use. However, more demanding workloads may push its limits.

B. detailed Specifications

Table 1 details the key hardware specifications:

Component	Specification
CPU	Intel Core i3-1005G1 dual-core processor up to 3.4GHz.
CPU Architecture	10nm FinFET process, 4MB cache, 6W TDP.[2]
RAM	4GB DDR4-2400 SDRAM
Storage	128GB M.2 PCIe NVMe solid state drive (SSD)
Display	15.6-inch HD (1366 x 768) LED-backlit LCD
Graphics	Integrated Intel UHD Graphics
I/O Ports	2x USB 3.1 Gen 1, 1x USB 2.0, 1x HDMI 1.4b, headphone/mic jack, microSD card reader
Battery & Power	3-cell 41Wh Li-ion; 45W AC power adapter
Dimensions/Weight	0.78" x 14.17" x 9.41"; 3.75 lbs
OS	Pre-loaded Windows 10 Home

Table 1 provides a more exhaustive view of key specifications to analyse performance factors like processor architecture and I/O connectivity in detail.

III. Performance Analysis

A. CPU & Storage Benchmarks

The Core i3-1005G1 scored 838 single-core and 2634 multi-core on Geekbench 5.[3] These scores exceed the previous generation i3-7100U by 11-12% due to architecture improvements.

The PCIe NVMe SSD delivers swift boot, load and transfer times. One test measured read/write speeds of 450/415 MB/s,[4] on par with a standard SATA SSD. This helps optimize the user experience.

B. Graphics Capabilities

Integrated UHD Graphics provide basic 3D capabilities for casual games and multimedia. It scored 1986 on the demanding 3DMark Night Raid test.[5] While meeting minimum spec for many games, high settings may be too taxing. Dedicated graphics are recommended for demanding 3D work or games.

C. Display & Ports Assessment

The 15.6" HD panel is reasonably sharp for basic use but lacks the fidelity of FHD. Touch capability would enhance usability.

I/O includes USB-A, HDMI, card reader and USB-C for future-proof connectivity. However, only supporting USB 2.0 speeds somewhat limits peripheral and storage device interface capabilities.

D. Battery Life & Ergonomics

With a 41Whr cell, advertised battery life of up to 9 hours from a single charge is achievable with balanced settings.[6] However, more demanding loads will decrease this.

Weighing just 0.26785714 stones, its thin and lightweight aluminium design provides excellent portability for students or road warriors. Comfortable palm rests and crisp keyboard also support long productivity sessions.

IV. Conclusion

In conclusion, the HP 15s-fq2000 offers an attractively priced all-around package for students and other budget-minded users seeking a capable yet affordable machine. Benchmarking shows the SSD and upgraded Intel architecture provide responsive performance for everyday tasks. Some sacrifices like HD screen resolution, minimal graphics power and secondary USB 2.0 port were likely necessary to hit this low price point. Overall it delivers a competent and reasonably future-proof general purpose laptop within strict budget constraints.

V. References

- [1] NotebookCheck, "HP 15s-fq2000 15.6-inch Laptop Review," 2021.
<https://www.notebookcheck.net/HP-15s-fq2000-15-6-inch-Laptop-Review-Affordable-entry-level-laptop-with-SSD.573067.0.html>
- [2] Geekbench, "Intel Core i3-1005G1 Benchmark Scores," 2021.
<https://browser.geekbench.com/processors/intel-core-i3-1005g1>
- [3] TechAdvisor, "HP 15s-fq2000 Review: Budget Laptop Done Right," by A. Smith, 2021.
<https://www.techadvisor.com/review/hp-15s-fq2000-3801542/>
- [4] Notebookcheck, "HP 15s-fq2000 Laptop Review Part 2 - Benchmark Tests," 2021.
<https://www.notebookcheck.net/HP-15s-fq2000-Laptop-Review-Affordable-entry-level-laptop-with-SSD-Part-2-Benchmark-Tests.573068.0.html>
- [5] Notebookcheck, "HP 15s-fq2000 3DMark Night Raid Score," 2021.
<https://www.notebookcheck.net/HP-15s-fq2000-Laptop-Review-Affordable-entry-level-laptop-with-SSD-Part-2-Benchmark-Tests.573068.0.html>
- [6] Notebookcheck, "HP 15s-fq2000 Battery Life," 2021.
<https://www.notebookcheck.net/HP-15s-fq2000-Laptop-Review-Affordable-entry-level-laptop-with-SSD-Part-2-Benchmark-Tests.573068.0.html>

Low-Cost Desktop PC for an Elderly User Task one two.docx

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

50/100

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

GEORGE STEFANOV

50

ENGAGEMENT WITH LITERATURE

Marks will be awarded based on the extent of research and/or own reading, selection of credible sources, application of appropriate referencing conventions. Your research sources should extend beyond simply using the links provided in the moodle content. You MUST include evidence of sources that you have discovered yourself during the course of your own student centred work.



Engagement with a limited range of mostly relevant and credible sources but with some reliance on information gained through class contact. Some omissions and minor errors. Referencing conventions evident though not always applied accurately or consistently. Citation and references could have improved.

2

KNOWLEDGE AND UNDERSTANDING

Marks will be allocated based on the demonstration and extent of knowledge and understanding of the general concepts and underlying principles covered in this module.



Limited knowledge and understanding of the basic underlying concepts and principles within the

15

subject area. Some elements may be missing. Non-academic writing style were found in the report, specially in the abstract section! In addition, non-satisfactory word count of the report!

COGNITIVE AND INTELLECTUAL

This section covers your ability to look at the alternative solutions, and provide solid justification as to why your chosen components are the most suitable compared to others.



Limited attempt at evaluation of the underlying concepts and principles, tending towards description.

Can interpret qualitative and quantitative data but with some errors. Some evidence to support emerging arguments and judgements but these may be underdeveloped or with a little inconsistency / mis-interpretation.

13

PRACTICAL SKILLS

This section will allocate marks based on the real life practicality of overall system. Have you come up with a sensible, balanced, usable system with no obvious omissions or unsuitable choices etc.



An adequate awareness and mostly appropriate application of basic methods, materials, tools and/or techniques.

Basic appreciation of the context of the application.

Can identify problems in particular contexts and propose basic alternative approaches or solutions though there may be errors. Non academic writing style!

10

TRANSFERABLE SKILLS FOR LIFE

This section will be assessed based on the written and presentational quality of the report. Style, structure, grammar, spelling etc. Make sure it conforms to the layout conventions previously discussed in class.



Mostly ordered presentation and structure in which relevant ideas / concepts are reasonably expressed. Work may lack coherence and/or accuracy in places. Can work as part of a group, meeting most obligations to others but perhaps with limited involvement in group activities. Demonstrates the basic skills for employment requiring the exercise of some personal responsibility, with some areas of minor weakness.

10