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Philips C7420

VIDEOPAC C7420: Home Computer Module Programming Manual

Comprehensive Guide for the Philips Videopac+ G7400 and C7420 BASIC Module

INTRODUCTION AND OVERVIEW

This manual compiles available information regarding the programming of the Home Computer system formed by the union of the Philips "Videopac+ G7400" console and the "C7420" BASIC module, both released by Philips in 1983.

The Videopac+ G7400 represented the third and final generation, and the most powerful version, of the Videopac and Odyssey consoles. It was based on the Odyssey3 prototype, which was presented by Magnavox in 1983 but never entered mass production. Following the G7400's introduction, Philips developed the C7420 module, which transformed the console into a home computer with an operating environment based on the BASIC-80 interpreter, a custom variation of the 8K Microsoft BASIC.

The primary objective of this book is to preserve and disseminate historical information and knowledge related to the C7420 machine, aiming to prevent its loss over time.



Figure 1: Front cover of the VIDEOPAC C7420 Home Computer Module Programming Manual. This image displays the front cover of the programming manual for the Philips Videopac+ G7400 console and C7420 BASIC module. The cover features the title, a summary of the book's content, author information, and the ISBN barcode.

SETUP: CONNECTING THE C7420 MODULE

To utilize the C7420 module as a home computer, it must be physically connected to a Philips Videopac+ G7400 console. This section outlines the general procedure for establishing this connection.

1. **Power Off:** Ensure both the Videopac+ G7400 console and the C7420 module are powered off and disconnected from their power sources before attempting any connections.
2. **Module Insertion:** Carefully insert the C7420 module into the designated expansion port on the Videopac+ G7400 console. The port is typically located on the top or rear of the console. Ensure the module is seated firmly and correctly.
3. **Peripheral Connections:** Connect any necessary peripherals, such as a monitor or television, to the Videopac+ G7400 console. The C7420 module itself does not typically have direct video output ports.
4. **Power On:** Once all connections are secure, connect the power supply to the Videopac+ G7400 console and power it on. The system should boot into the BASIC-80 operating environment provided by the C7420 module.

Note: Specific connection details may vary slightly based on the exact model and regional variations of the G7400 console. Refer to the original G7400 console manual for detailed port identification.

OPERATING THE BASIC-80 ENVIRONMENT

The C7420 module extends the Videopac+ G7400 into a programmable home computer utilizing a custom 8K Microsoft BASIC-80 interpreter. This section provides an overview of basic operation within this environment.

- **Command Line Interface:** Upon successful boot, the system will present a command line prompt, typically indicated by a character like > or OK. This is where BASIC commands and program lines are entered.
- **Entering Programs:** To write a program, type line numbers followed by BASIC statements. For example:

```
10 PRINT "HELLO WORLD"  
20 GOTO 10
```

- **Running Programs:** After entering a program, type RUN and press Enter to execute it.
- **Listing Programs:** To view the current program in memory, type LIST and press Enter.
- **Saving and Loading:** The C7420 module typically supported external storage devices, such as cassette tape recorders, for saving and loading programs. Specific commands like SAVE "PROGRAMNAME" and LOAD "PROGRAMNAME" would be used, often requiring the external device to be properly connected and configured.
- **System Commands:** Other common commands include NEW (to clear memory), CONT (to continue execution after a break), and various commands for managing variables, arrays, and input/output.

This manual provides detailed programming instructions and command references for the BASIC-80 interpreter.

PROGRAMMING CONCEPTS

The core of the C7420 module's functionality lies in its BASIC-80 programming capabilities. This section introduces fundamental programming concepts relevant to the system.

- **Variables:** Understanding how to declare and use variables for storing data (e.g., A=10, NAME\$="JOHN").

- **Control Flow:** Implementing conditional statements (IF...THEN...ELSE) and loops (FOR...NEXT, WHILE...WEND) to control program execution.
- **Subroutines:** Using GOSUB and RETURN for modular programming.
- **Graphics and Sound:** Exploring the specific commands available in the C7420's BASIC for generating graphics and sound on the Videopac+ G7400 display. These commands often interact directly with the console's hardware capabilities.
- **Memory Management:** Basic understanding of memory organization and how to manage program and data storage within the limited 8K BASIC environment.

Detailed examples and command syntax are provided throughout this manual.

MAINTENANCE AND PRESERVATION

Given the vintage nature of the Videopac+ G7400 console and C7420 module, proper maintenance and preservation are crucial for their longevity and continued operation.

- **Cleaning:** Regularly clean the exterior of the console and module with a soft, dry cloth. Avoid liquid cleaners directly on electronic components. Use compressed air to clear dust from vents and ports.
- **Storage:** Store the equipment in a cool, dry place, away from direct sunlight, extreme temperatures, and high humidity. Original packaging, if available, offers the best protection.
- **Connection Integrity:** Periodically inspect connection ports for corrosion or damage. Ensure cartridges and modules are inserted and removed carefully to prevent pin bending.
- **Power Supply:** Use only the original or a compatible, correctly specified power supply. Incorrect voltage or amperage can damage the console.
- **Data Backup:** For any programs or data created, consider backing them up to modern digital formats if possible, using emulation or specialized hardware interfaces, to prevent loss from aging media.

TROUBLESHOOTING COMMON ISSUES

This section addresses common problems encountered when operating the Videopac+ G7400 with the C7420 module and offers potential solutions.

- **No Display Output:**
 - Check all video cable connections between the console and the display device.
 - Ensure the display device is set to the correct input channel.
 - Verify the console's power supply is connected and functioning.
- **C7420 Module Not Recognized:**
 - Ensure the C7420 module is fully and correctly seated in the expansion port.
 - Clean the module's connector pins and the console's port with a non-abrasive electronic cleaner if necessary.
 - Try re-inserting the module.
- **BASIC Programs Not Running/Saving:**
 - Check for syntax errors in your BASIC code. The interpreter will often provide error messages.
 - Ensure sufficient memory is available for the program. Use NEW to clear previous programs.
 - If using external storage (e.g., cassette), verify the device is connected, powered, and operating

correctly.

- **System Freezes or Crashes:**

- Power cycle the console (turn off, wait a few seconds, then turn on).
- Ensure the console and module are not overheating.
- Complex or erroneous BASIC programs can sometimes cause instability.

For persistent issues, consult online retrocomputing communities or specialized repair services.

SPECIFICATIONS

| Feature | Detail |
|-----------------------|---|
| Product Title | VIDEOPAC C7420: Home Computer Module Programming Manual |
| Associated Console | Philips Videopac+ G7400 |
| Module Type | BASIC Programming Module |
| BASIC Interpreter | Custom 8K Microsoft BASIC-80 |
| Original Release Year | 1983 |
| Manual Language | English |
| Print Length | 285 pages |
| ISBN-13 | 979-8867838515 |
| Publication Date | November 15, 2023 |

HISTORICAL CONTEXT AND PRESERVATION EFFORTS

The Videopac+ G7400 and its C7420 module represent a significant, albeit niche, part of early home computing history. The G7400 was the pinnacle of the Videopac/Odyssey console line, evolving from the unreleased Odyssey3 prototype. The C7420 module's integration of Microsoft BASIC-80 provided users with a powerful tool for programming, a common feature of home computers during that era. This manual serves as a dedicated effort to document and preserve the technical knowledge surrounding the C7420 machine. By consolidating information that was previously scattered or at risk of being lost, it aims to support retrocomputing enthusiasts and historians in understanding and interacting with this unique piece of computing heritage.

ABOUT THE AUTHOR

Francesco Ferri, the author of this manual, was an owner of the Videopac G7400 console with the C7420 module in 1983. After approximately 40 years, he undertook the extensive research to recover and compile the limited available information related to programming this home computer. His primary motivation for creating this volume is to make this knowledge accessible to all retrocomputing enthusiasts. The original material has been meticulously reviewed, corrected, and enhanced with numerous screenshots generated via a system emulator, ensuring accuracy and clarity for contemporary readers.

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