

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MICROSOFT CORPORATION,  
Petitioner,

v.

SMART SKINS LLC,  
Patent Owner.

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Case IPR2016-00404  
Patent 7,079,864 B2

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Before STACEY G. WHITE, ROBERT J. WEINSCHENK, and  
KAMRAN JIVANI, *Administrative Patent Judges*.

WEINSCHENK, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

Microsoft Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1, 12, 13, 15, 23, and 24 of U.S. Patent No. 7,079,864 B2 (Ex. 1001, “the ’864 patent”). Smart Skins LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”) to the Petition. On July 1, 2016, we instituted an *inter partes* review of claims 1, 12, 13, 15, 23, and 24 (“the challenged claims”) of the ’864 patent on the following grounds:

<b>Claims</b>	<b>Statutory Basis</b>	<b>Applied References</b>
1, 12, 13, 15, 23, and 24	35 U.S.C. § 103(a) <sup>1</sup>	Lunsford, U.S. Patent No. 6,356,442 B1 (issued Mar. 12, 2002) (Ex. 1003, “Lunsford”); and Canova, Jr. et al., U.S. Patent No. 6,535,199 B1 (issued Mar. 18, 2003) (Ex. 1004, “Canova”)
1, 12, 13, 15, 23, and 24	35 U.S.C. § 103(a)	Janik et al., U.S. Patent Application Pub. No. 2002/0078248 A1 (published June 20, 2002) (Ex. 1005, “Janik”); and Kehoe et al., U.S. Patent No. 6,837,435 B2 (issued Jan. 4, 2005) (Ex. 1006, “Kehoe”)

Paper 8 (“Dec. on Inst.”), 15.

After institution, Patent Owner filed a Response (Paper 14, “PO Resp.”) to the Petition, and Petitioner filed a Reply (Paper 22, “Pet. Reply”)

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<sup>1</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, which was enacted on September 16, 2011, made amendments to 35 U.S.C. §§ 102, 103. AIA § 3(b), (c). Those amendments became effective eighteen months later on March 16, 2013. *Id.* at § 3(n). Because the application from which the ’864 patent issued was filed before March 16, 2013, any citations herein to 35 U.S.C. §§ 102, 103 are to their pre-AIA versions.

to the Response. An oral hearing was held on March 21, 2017, and a transcript of the hearing is included in the record. Paper 26 (“Tr.”).

We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, Petitioner has shown by a preponderance of the evidence that claims 1, 12, 13, 15, 23, and 24 of the ’864 patent are unpatentable.

A. *Related Proceedings*

The parties indicate that the ’864 patent is at issue in the following case in the United States District Court for the Western District of Washington (“District Court”): *Smart Skins LLC v. Microsoft Corp.*, No. 2:15-cv-00544 (W.D. Wash.). Pet. 1; Paper 6, 2.

B. *The ’864 Patent*

The ’864 patent relates to adding a peripheral, such as a credit card reader, to a mobile device. Ex. 1001, col. 1, ll. 26–30, col. 2, ll. 37–38, col. 3, ll. 26–30. According to the ’864 patent, prior mobile devices typically included only one port for adding a peripheral. *Id.* at col. 1, ll. 60–65. To address this problem, the ’864 patent describes an interchangeable cover for a mobile device that is equipped to add more peripherals to the mobile device. *Id.* at col. 1, ll. 26–30, col. 2, ll. 37–38. The ’864 patent explains that the cover includes electronics that facilitate addition of the peripherals to the mobile device. *Id.* at col. 3, ll. 20–25, col. 4, ll. 24–30.

C. *Illustrative Claim*

Claims 1 and 15 are independent. Claim 1 is reproduced below.

1. An interchangeable cover comprising:  
a cover body adapted to mate with a mobile device, and  
to serve as a cover of the mobile device, the mobile device  
having an extension interface;

an input/output (I/O) interface disposed on the cover body, and adapted to engage with the extension interface of the mobile device;

at least one peripheral device disposed on an exterior surface of the cover body; and

an electronic component, disposed on an interior surface of the cover body, coupled to the peripheral device and the I/O interface, the electronic component being separate and distinct from the at least one peripheral device and configured to facilitate adding the at least one peripheral device to the mobile device mated with the cover body, through said I/O and extension interfaces, as peripheral device(s) of the mobile device.

Ex. 1001, col. 7, ll. 15–31.

## II. ANALYSIS

### A. *Level of Ordinary Skill in the Art*

Petitioner argues that a person of ordinary skill in the art would have had a Bachelor's degree in electrical engineering or computer engineering, and one or two years of experience developing both hardware and software systems for microcomputers or portable electronic devices. Pet. 12.

Petitioner also argues that a person of ordinary skill in the art would have had general knowledge of embedded systems, peripherals, communications protocols, hardware design, and the like. *Id.* Patent Owner argues that a person of ordinary skill in the art would have had a Bachelor's degree or equivalent in engineering or computer science, a minimum of a few years of experience with designing and developing software and hardware systems for mobile devices, and general knowledge of embedded systems, and software principles, peripherals, communications protocols, and the like. PO Resp. 5 (citing Ex. 2006 ¶¶ 27, 28).

The parties do not identify any material differences between their respective definitions of the level of ordinary skill in the art. Pet. 11–12; PO Resp. 5. Thus, we determine that both parties define the level of ordinary skill in the art appropriately in this case. Further, our findings and conclusions in this case would be the same under either party’s definition of the level of ordinary skill in the art. To the extent necessary, though, we adopt Patent Owner’s definition, which is supported by the declaration of Dr. Ian Cullimore. PO Resp. 5; Ex. 2006 ¶ 27. As such, we determine that a person of ordinary skill in the art would have had a Bachelor’s degree or equivalent in engineering or computer science, a minimum of a few years of experience with designing and developing software and hardware systems for mobile devices, and general knowledge of embedded systems, and software principles, peripherals, communications protocols, and the like.

B. *Claim Construction*

The claims of an unexpired patent are interpreted using the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–45 (2016). In applying that standard, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the specification. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). An applicant may provide a different definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read into the claims from the specification. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

1. *Agreed Constructions*

The parties agreed to constructions of the claim terms “cover,” “extension interface,” and “peripheral device,” which we adopted in the Decision on Institution. Pet. 20–21; Prelim. Resp. 5; Dec. on Inst. 4–5. We see no reason now to deviate from the agreed constructions set forth below.<sup>2</sup>

<b>Claim Term</b>	<b>Construction</b>
cover	A part that inherently includes multiple surfaces that cover at least multiple ones of the exterior surfaces of the body or core unit of a mobile device, where the exterior surfaces are inherently disposed in different geometric planes. A “card” like part, i.e., a part having the form factor of a “credit card,” a PCMCIA card, a PC card, a Compact Flash card and so forth, is not a “cover.”
extension interface	A physical connection through which electrical signals are conveyed to/from the mobile device.
peripheral device	An auxiliary device that adds functionality to the mobile device.

2. *Adding Limitations*

Claim 1 recites an electronic component “configured to *facilitate adding* the at least one peripheral device to the mobile device.” Ex. 1001, col. 7, ll. 24–31 (emphasis added). Claim 15 similarly recites an electronic component “designed to *add* the at least one peripheral device to the core unit.” *Id.* at col. 8, ll. 15–27 (emphasis added). We refer to these claim limitations as the “adding limitations.” Petitioner proposes construing the

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<sup>2</sup> Although we apply a different claim construction standard than the District Court, *Cuozzo*, 136 S. Ct. at 2144–45, the agreed constructions of the terms “cover,” “extension interface,” and “peripheral device” in this case are consistent with the agreed constructions of those terms adopted by the District Court, *Smart Skins LLC v. Microsoft Corp.*, No. 2:15-cv-00544, slip op. at 13–14 (W.D. Wash. Dec. 22, 2015) (Dkt. No. 84).

adding limitations to mean “configured to enable or contribute to enabling the peripheral device and the mobile device to function together when the cover is covering the core unit/mobile device.” Pet. 21 (emphasis omitted). Petitioner argues that its proposed construction “closely tracks the descriptions in the specification.” *Id.* at 21–22 (citing Ex. 1001, col. 4, ll. 31–35, col. 4, ll. 43–55, col. 4, l. 65–col. 5, l. 3, col. 6, ll. 16–19).

We agree that the specification of the ’864 patent supports construing the adding limitations to mean “configured to enable or contribute to enabling the peripheral device and the mobile device to function together,” as Petitioner proposes. For example, the ’864 patent states that “I/O interface **406** [of electronics 400] *facilitates* an application or a system service of mobile device **300** in *reading the inputs* provided by peripherals **102–104**, and to *writing the outputs* to be outputted to peripherals **102–104**.” Ex. 1001, col. 4, l. 65–col. 5, l. 1 (emphasis added). The ’864 patent further explains that “protocol processor **403** [of electronics 400] is employed to *recover the input data*” from peripherals 102–104 (*id.* at col. 4, ll. 43–48 (emphasis added)), and that “device driver **532** [of mobile device 300] notifies protocol processor 403 to *package the data for output* to peripherals **102–104**” (*id.* at col. 5, l. 66–col. 6, l. 1 (emphasis added)). These portions of the ’864 patent indicate that the electronic component, which includes the protocol processor, facilitates the transmission of data between the peripheral device and the mobile device, and, thus, contributes to enabling the peripheral device and the mobile device to function together. *Id.* at col. 6, ll. 3–4 (“Accordingly, data may be . . . inputted and/or outputted for mobile device **300** and peripherals **102–104**.”).

In its Patent Owner Response, Patent Owner does not dispute Petitioner’s proposed construction. PO Resp. 6–8; Tr. 25:14–20, 38:5–39:13. Patent Owner argued previously in the Preliminary Response that Petitioner’s proposed construction improperly “attempts to build in the narrowing language ‘*when the cover is covering the core unit/mobile device,*’ which is not implied by the claim language, [or] described by the specification.”<sup>3</sup> Prelim. Resp. 10–12. That argument, however, was waived because Patent Owner did not raise it in the Patent Owner Response. Paper 9, 3 (“any arguments for patentability not raised in the response will be deemed waived”); PO Resp. 6–8; Tr. 38:5–39:13. Moreover, as set forth below, we do not adopt the portion of Petitioner’s proposed construction that Patent Owner disputed in the Preliminary Response. Namely, our construction of the adding limitations does not include the allegedly narrowing language “when the cover is covering the core unit/mobile device” because we do not need to determine whether the adding limitations include such a requirement to resolve the parties’ disputes regarding the asserted grounds of unpatentability in this case. *See infra* Sections II.C–II.E; *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

Patent Owner argued at the oral hearing that we rejected Petitioner’s proposed construction of the adding limitations in our Decision on Institution. Tr. 35:6–18. We disagree. In the Decision on Institution, we determined that no express construction of the adding limitations was

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<sup>3</sup> Patent Owner otherwise did not dispute Petitioner’s proposed construction in the Preliminary Response. Prelim. Resp. 10–12.

necessary to resolve the parties' disputes regarding the asserted grounds of unpatentability at that stage of the proceeding. Dec. on Inst. 6. We did not reject Petitioner's proposed construction. *Id.* Further, although we did not adopt Petitioner's proposed construction in the Decision on Institution, Patent Owner had notice of Petitioner's proposed construction (Pet. 21–22), and had an opportunity to respond to Petitioner's proposed construction in the Patent Owner Response (PO Resp. 6–8).

Patent Owner does not propose its own construction for the adding limitations in the Patent Owner Response. PO Resp. 6–8; Tr. 25:14–20, 38:5–39:13. Patent Owner, however, argued at the oral hearing that the adding limitations refer to “the steps necessary to add the functionality . . . not the steps to keep it going,” and, thus, “adding tak[es] place before functioning.” Tr. 36:16–22, 46:1–47:6. Patent Owner similarly argued that the adding limitations refer to “the exchange of instructions that provide what is necessary to get that access started.” *Id.* at 37:18–38:2. Patent Owner also argued that the adding limitations require “what you would typically find in a driver on software.” *Id.* at 36:22–37:9.

Patent Owner contended that those claim construction arguments were made prior to the oral hearing on pages 28 and 29 of the Patent Owner Response. Tr. 46:1–47:13, 69:6–70:9. Pages 28 and 29 of the Patent Owner Response include the following arguments:

*First*, the fact that Lunsford's “processor [] converts the bit data into protocols for Bluetooth communications,” does not teach or suggest adding the radio antenna of Lunsford to the mobile device mated with the cover body. Lunsford discloses that the “processor [] converts the bit data into protocols for Bluetooth communications,” when it is preparing the bit data for wireless transmission from the radio antenna to a remote receiving

device. Ex. 2006, ¶61. In the same passage, Lunsford discloses that “radio 445 may also convert *outgoing* bit data from processor [] to *radio forms*.” Ex. 1003, 13:43-44. There is no teaching or suggestion that the radio co-processor and real time protocols facilitate adding the at least one peripheral device—here, the radio antenna of Lunsford (*see* Petition, p. 28)—to the mobile device mated with the cover body.

*Second*, Dr. Cullimore opines that device drivers or firmware for Bluetooth enabled peripherals would need to be installed on PDAs, such as Palm Inc.’s Palm III and V PDAs, at the time of the ’864 Patent. Ex. 2006, ¶62. Dr. Cullimore notes that the main microprocessor of the PDA, running the device driver or firmware, would be the component responsible for adding Bluetooth enabled peripherals to the PDA—not the radio co-processor of the Bluetooth enabled peripheral. *Id.* At the time, radio co-processors, such as those described in Lunsford, were processors dedicated to executing only those embedded elements of the software stack necessary to accomplish the radio communications. *Id.*

PO Resp. 28–29. In the first paragraph above, Patent Owner argues that the processor in Lunsford does not facilitate adding the peripheral device to the mobile device, but Patent Owner does not explain specifically what the term “facilitate adding” means in the context of the ’864 patent. *Id.* In the second paragraph above, Patent Owner argues that the device driver or firmware on the personal digital assistant (“PDA”)<sup>4</sup> in Lunsford is responsible for adding the peripheral device to the PDA, but again Patent Owner does not explain specifically what the term “add” means in the context of the ’864 patent. *Id.*

Thus, we cannot discern where the Patent Owner Response presents any of the arguments that Patent Owner made at the oral hearing about the

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<sup>4</sup> The parties sometimes refer to the handheld computer in Lunsford as a PDA. *See, e.g.*, Pet. 13–14; PO Resp. 29.

meaning of the adding limitations. And, when given the opportunity at the oral hearing to provide a more specific identification of where those arguments appear in the record, Patent Owner did not do so. Tr. 69:6–70:9. Because the arguments Patent Owner made at the oral hearing about the meaning of the adding limitations were not presented prior to the oral hearing, those arguments were waived. Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,768 (Aug. 14, 2012) (“No new evidence or arguments may be presented at the oral argument.”).

Moreover, even if Patent Owner’s arguments at the oral hearing about the meaning of the adding limitations were not waived, those arguments are not persuasive. We do not read the specification of the ’864 patent as indicating that adding takes place before functioning. Rather, as discussed above, the ’864 patent indicates that the electronic component on the cover enables the mobile device to read data from the peripheral device and output data to the peripheral device. Ex. 1001, col. 4, ll. 43–48, col. 4, l. 65–col. 5, l. 1, col. 5, l. 66–col. 6, l. 1. In other words, the electronic component facilitates the transmission of data between the peripheral device and the mobile device, thereby enabling those devices to function together. *Id.* at col. 6, ll. 3–4 (“Accordingly, data may be . . . inputted and/or outputted for mobile device **300** and peripherals **102–104**.”). Further, contrary to Patent Owner’s argument that the electronic component on the cover performs the tasks typically found in a software driver, the ’864 patent specifies that the software driver is part of the mobile device, not the electronic component on the cover. *Id.* at col. 5, ll. 41–42, col. 5, l. 66–col. 6, l. 1.

For the foregoing reasons, we adopt a portion of Petitioner’s proposed construction of the adding limitations. Specifically, we construe the phrase

“configured to facilitate adding the at least one peripheral device to the mobile device” in claim 1 and the phrase “designed to add the at least one peripheral device to the core unit” in claim 15 to mean “configured to enable or contribute to enabling the peripheral device and the mobile device/core unit to function together.”

### 3. *Protocol Processor*

Claim 12 recites “wherein the electronic component comprises a protocol processor,” and claim 23 recites “wherein the electronic components of the interchangeable cover comprise, a protocol processor.” Ex. 1001, col. 8, ll. 3–4, col. 8, ll. 62–64. Petitioner proposes construing the term “protocol processor” to mean “[a]n electronic device that helps a peripheral device communicate with a mobile device by processing data into or out of a pre-defined format.” Pet. 22 (emphasis omitted). Petitioner argues that its proposed construction “closely tracks the descriptions in the specification, but without being limited to the preferred embodiment.” *Id.* at 22–23 (citing Ex. 1001, Abstract, col. 4, ll. 43–48, col. 4, ll. 48–55). Patent Owner proposes construing the term “protocol processor” to mean “a processor that processes incoming data packets, and packages outgoing data, according to a predefined protocol.” PO Resp. 6. Patent Owner argues that its proposed construction is consistent with how a person of ordinary skill in the art would understand the term “protocol processor” in light of the specification. *Id.* at 6–7 (citing Ex. 1001, Abstract, col. 4, ll. 43–55; Ex. 2006 ¶ 41).

In the Decision on Institution, we construed the term “protocol processor” to mean “a processor that recovers input data and packages output data in accordance with a pre-defined protocol.” Dec. on Inst. 5–6.

Patent Owner argues that our construction in the Decision on Institution “requires further clarification” because the specification of the ’864 patent makes clear that the protocol processor “perform[s] processing on data *packets*,” not just data. PO Resp. 6–7. Petitioner responds that “there is no definition . . . in the specification that the protocol processor has to deal with packets.” Tr. 6:9–20. We agree with Patent Owner.

The ’864 patent states that the protocol processor is “for *de-packaging* and *packaging* data being inputted/outputted in accordance with selected protocols.” Ex. 1001, Abstract (emphasis added). The ’864 patent also states that “[w]here applicable, for input data, protocol processor **403** performs the appropriate acknowledgement, processing of the *header packet*, extraction of data from the *data packets*, and so forth,” and “where applicable, for output data, protocol processor **403** performs the appropriate formation of *data packets*, formation of *header packets*, request for the serial bus and so forth.” *Id.* at col. 4, ll. 48–55 (emphasis added). These portions of the ’864 patent indicate that the protocol processor performs processing on data packets. Ex. 2006 ¶ 41.

Petitioner points out that Patent Owner’s proposed construction uses the words “incoming data” and “outgoing data,” rather than the words “input data” and “output data” that are used in the specification of the ’864 patent. Pet. Reply 17; Tr. 5:10–21. Petitioner argues that Patent Owner’s word choice is “designed to escape the consequences of the specification describing packetized communications only between the cover and the peripheral, not between the cover and the mobile device.” Pet. Reply 17. We are not persuaded by Petitioner’s concerns because we do not interpret the words “incoming data” and “outgoing data” as requiring that the

transmission of packetized communications occur between the cover and the mobile device. *See infra* Section II.D.4. Further, Patent Owner explains that its proposed construction (which is identical to the District Court’s construction of the term “protocol processor”) includes the words “incoming data” and “outgoing data” simply to maintain consistency with the District Court’s construction. Tr. 34:11–35:4.

For the foregoing reasons, we adopt Patent Owner’s proposed construction of the term “protocol processor.” Specifically, we construe the term “protocol processor” to mean “a processor that processes incoming data packets, and packages outgoing data, according to a predefined protocol.”<sup>5</sup>

#### 4. *Remaining Claim Terms and Phrases*

Petitioner proposes construing several other claim terms and phrases. Pet. 20–22. Patent Owner does not dispute Petitioner’s proposed constructions for those claim terms and phrases. PO Resp. 6–8. Nonetheless, we determine that those claim terms and phrases do not require express construction to resolve the parties’ disputes regarding the asserted grounds of unpatentability in this case. *See infra* Sections II.C–II.E; *Vivid Techs.*, 200 F.3d at 803 (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

#### C. *Priority Date of the ’864 Patent*

The ’864 patent is a continuation-in-part of U.S. Patent Application No. 10/087,098 (Ex. 1014, “the ’098 application”), which was filed on March 1, 2002, and the ’864 patent and the ’098 application claim priority to

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<sup>5</sup> Our construction of the term “protocol processor” is consistent with the District Court’s construction of that term. *Smart Skins*, No. 2:15-cv-00544, slip op. at 10–12 (Dkt. No. 84).

U.S. Provisional Patent Application No. 60/306,326 (Ex. 1015, “the ’326 provisional”), which was filed on July 17, 2001.<sup>6</sup> Pet. 10; PO Resp. 8; Ex. 1001; Ex. 1014, 2. The ’864 patent is entitled to a filing date of July 17, 2001, only if the disclosure of the ’098 application and the ’326 provisional (collectively, “the priority applications”) provide written description support for the claims of the ’864 patent. *Zenon Env'tl., Inc. v. U.S. Filter Corp.*, 506 F.3d 1370, 1378 (Fed. Cir. 2007). Specifically, the priority applications must “convey with reasonable clarity to those skilled in the art that, as of the filing date sought, [the inventor] was in possession of the invention.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008) (emphasis omitted). Entitlement to the benefit of the filing date of the priority applications is determined on a claim-by-claim basis. *Lucent Techs., Inc. v. Gateway, Inc.*, 543 F.3d 710, 718 (Fed. Cir. 2008).

Patent Owner acknowledges that it bears the burden to come forward with evidence that the challenged claims of the ’864 patent are entitled to the benefit of the filing date of the priority applications. PO Resp. 8–9; *see Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375, 1379 (Fed. Cir. 2015); *PowerOasis*, 522 F.3d at 1305–06. Patent Owner’s burden of production may entail “producing additional evidence and presenting persuasive argument based on new evidence or evidence already of record.” *Dynamic Drinkware*, 800 F.3d at 1379. To satisfy that burden, Patent Owner provides a chart that maps each limitation of the challenged claims to disclosure in the priority applications. PO Resp. 9–20; Ex. 2006 ¶¶ 43–53.

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<sup>6</sup> The ’864 patent claims priority to several other applications (Ex. 1001), but Patent Owner does not argue that the ’864 patent is entitled to the benefit of the filing date of any of those applications (PO Resp. 8–20).

For the reasons discussed below, Patent Owner has met its burden of production with respect to the challenged claims.

1. *Claims 1 and 15*

Claim 1 recites “a cover body adapted to mate with a mobile device, and to serve as a cover of the mobile device, the mobile device having an extension interface.” Ex. 1001, col. 7, ll. 16–18. The priority applications disclose an interchangeable cover for a mobile phone that covers all or portions of the mobile phone. PO Resp. 10; Ex. 1014, 10; Ex. 1015, 9. The priority applications also disclose that the mobile phone includes a coupler in the form of contact pins (i.e., an extension interface). PO Resp. 10–11; Ex. 1014, 9–10, Fig. 2A; Ex. 1015, 8–9, Fig. 2A.

Claim 1 recites “an input/output (I/O) interface disposed on the cover body, and adapted to engage with the extension interface of the mobile device.” Ex. 1001, col. 7, ll. 19–21. The priority applications disclose contact pads (i.e., an I/O interface) disposed on the interchangeable cover that match and engage with the contact pins on the mobile phone. PO Resp. 13–14; Ex. 1014, 9–10, Fig. 2B; Ex. 1015, 8–9, Fig. 2B.

Claim 1 recites “at least one peripheral device disposed on an exterior surface of the cover body.” Ex. 1001, col. 7, ll. 22–23. The priority applications disclose light emitting diodes (“LEDs”) that are disposed on an exterior surface of the interchangeable cover. PO Resp. 15; Ex. 1014, 17; Ex. 1015, 16.

Claim 1 recites “an electronic component, disposed on an interior surface of the cover body, coupled to the peripheral device and the I/O interface, the electronic component being separate and distinct from the at least one peripheral device.” Ex. 1001, col. 7, ll. 24–27. The priority

applications disclose a separate electronic component that is embedded in the interchangeable cover. PO Resp. 15; Ex. 1014, 8–9; Ex. 1015, 7–8. The priority applications disclose that leads of the electronic component are coupled to the contacts pads on the interchangeable cover. PO Resp. 15; Ex. 1014, 9–10; Ex, 1015, 8–9. The priority applications also disclose that the electronic component includes data for personalizing various aspects of the mobile phone, such as data for controlling the LEDs on the interchangeable cover. PO Resp. 15–16; Ex. 1014, 8–9, 17, 21; Ex. 1015, 7–8, 16. 20. Thus, the priority applications convey that the electronic component is coupled to the LEDs on the interchangeable cover.

Claim 1 recites that the electronic component is “configured to facilitate adding the at least one peripheral device to the mobile device mated with the cover body, through said I/O and extension interfaces, as peripheral device(s) of the mobile device.” Ex. 1001, col. 7, ll. 28–31. As discussed above, we construe this limitation to mean “configured to enable or contribute to enabling the peripheral device and the mobile device/core unit to function together.” *See supra* Section II.B.2. The priority applications disclose that the electronic component exchanges data with the mobile phone through the contact pads on the interchangeable cover and the contact pins on the mobile phone. PO Resp. 15–16; Ex. 1014, 10, 21; Ex. 1015, 9, 20. The priority applications also disclose that the electronic component and the mobile phone exchange data for personalizing various aspects of the mobile phone. PO Resp. 15–16; Ex. 1014, 8–9, 21; Ex. 1015, 7–8, 20. For example, the LEDs on the interchangeable cover “may be utilized for various visual activities, such as, but not limited to, displaying a

message, or lighting up corresponding to sounds.” PO Resp. 15; Ex. 1014, 17; Ex. 1015, 16.

Claim 15 recites limitations similar to those discussed above for claim 1, and further recites that the interchangeable cover is “removably attached to the core unit.” Ex. 1001, col. 8, ll. 10–27. The priority applications disclose that the interchangeable cover can be removed from the mobile phone. PO Resp. 9; Ex. 1014, 8, Fig. 2B; Ex. 1015, 7, Fig. 2B.

For the foregoing reasons, we determine that Patent Owner has met its burden to come forward with evidence that claims 1 and 15 are entitled to the benefit of the filing date of the priority applications. *See Dynamic Drinkware*, 800 F.3d at 1379. As a result, the burden of production returns to Petitioner to show that claims 1 and 15 are not entitled to the benefit of the filing date of the priority applications. *Id.* at 1380. Petitioner argues that the priority applications do not disclose that the electronic component is coupled to the LEDs or that the electronic component is configured (or designed) to add the LEDs to the mobile device. Pet. Reply 2–4. Specifically, Petitioner argues that “[t]he two ancestor applications . . . do not describe those LEDs interacting with either the mobile device or the supposed electronic component in the cover,” but instead imply “that the LEDs control themselves.” *Id.* at 3–4. Petitioner’s argument is not persuasive.

First, the priority applications do not imply that the LEDs control themselves. The priority applications disclose that the electronic component on the cover includes data for personalizing various aspects of the mobile phone. PO Resp. 15–16; Ex. 1014, 8–9 (“having data . . . for personalizing various behavioral or non-visual aspects of the personality of exposed

mobile phone”), 21 (“During this exchange of data, settings . . . complementary to the personalizing theme of the interchangeable covering [are] immediately implemented in the mobile electronic device”); Ex. 1015, 7–8, 20. The priority applications further disclose that the “included data control[s] the LEDs.” PO Resp. 15; Ex. 1014, 17; Ex. 1015, 16. Thus, the priority applications convey that the electronic component on the cover includes data for controlling the LEDs.

Second, the priority applications describe the LEDs as interacting with the mobile device and the electronic component. As discussed above, the priority applications disclose that the electronic component and the mobile phone exchange data for personalizing various aspects of the mobile phone. PO Resp. 15–16; Ex. 1014, 8–9, 21; Ex. 1015, 7–8, 20. With respect to personalization of the mobile phone using the LEDs on the cover, the priority applications disclose that the “LEDs may be utilized for various visual activities, such as, but not limited to, displaying a message, or lighting up corresponding to sounds.” PO Resp. 15; Ex. 1014, 17; Ex. 1015, 16. Thus, the priority applications convey that the electronic component is coupled to the mobile phone and the LEDs, and that the electronic component enables the mobile device to function together with the LEDs (e.g., so that the LEDs can be used to display a message or light up corresponding to sounds).

Therefore, Patent Owner has shown sufficiently that claims 1 and 15 are entitled to the benefit of the filing date of the priority applications.

## 2. *Claims 12 and 23*

Claims 12 and 23 depend from claims 1 and 15, respectively, and recite that the electronic component comprises “a protocol processor.” Ex.

1001, col. 8, ll. 3–4, col. 8, ll. 62–64. As discussed above, we construe the term “protocol processor” to mean “a processor that processes incoming data packets, and packages outgoing data, according to a predefined protocol.” *See supra* Section II.B.3. The priority applications disclose that the electronic component on the cover may include a processor or central processing unit (“CPU”), and that the processor or CPU exchanges data with the mobile device. PO Resp. 17–18; Ex. 1014, 9, 18, 21; Ex. 1015, 8, 17, 20. The priority applications also disclose that “[i]f the electronic component 752 embedded in the interchangeable covering 750 is utilized to store [a] certain type of data requiring security, the embedded electronic component 752 may be in the form of a CPU to process security instructions.” PO Resp. 17; Ex. 1014, 20; Ex. 1015, 19. Patent Owner’s declarant, Dr. Cullimore, explains that processing security instructions involves processing incoming data packets and packaging outgoing data according to a predefined protocol. Ex. 2006 ¶ 52. Thus, the priority applications convey to a person of ordinary skill in the art that the inventors were in possession of the protocol processor in claims 12 and 13. *Id.*

For the foregoing reasons, we determine that Patent Owner has met its burden to come forward with evidence that claims 12 and 23 are entitled to the benefit of the filing date of the priority applications. *See Dynamic Drinkware*, 800 F.3d at 1379. As a result, the burden of production returns to Petitioner to show that claims 12 and 23 are not entitled to the benefit of the filing date of the priority applications. *Id.* at 1380. However, other than the argument discussed above for claims 1 and 15, Petitioner does not come forward with evidence indicating that claims 12 and 23 are not entitled the benefit of the filing date of the priority applications. Pet. Reply 1–4.

Therefore, Patent Owner has shown sufficiently that claims 12 and 23 are entitled to the benefit of the filing date of the priority applications.

3. *Claims 13 and 24*

Claims 13 and 24 depend from claims 12 and 23, respectively, and recite that the electronic component comprises “a storage unit.” Ex. 1001, col. 8, ll. 5–6, col. 8, ll. 65–67. The priority applications disclose that the electronic component in the cover may include a memory. PO Resp. 18–19; Ex. 1014, 9, 18, 19; Ex. 1015, 8, 17, 18. Thus, we determine that Patent Owner has met its burden to come forward with evidence that claims 13 and 24 are entitled to the benefit of the filing date of the priority applications. *See Dynamic Drinkware*, 800 F.3d at 1379. As a result, the burden of production returns to Petitioner to show that claims 13 and 24 are not entitled to the benefit of the filing date of the priority applications. *Id.* at 1380. However, other than the argument discussed above for claims 1 and 15, Petitioner does not come forward with evidence indicating that claims 13 and 24 are not entitled the benefit of the filing date of the priority applications. Pet. Reply 1–4.

Therefore, Patent Owner has shown sufficiently that claims 13 and 24 are entitled to the benefit of the filing date of the priority applications.

4. *Summary*

For the reasons discussed above, we determine that Patent Owner has shown sufficiently that the challenged claims are entitled to the benefit of the filing date of the priority applications, i.e., July 17, 2001.

D. *Obviousness of Claims 1, 12, 13, 15, 23, and 24 over Janik and Kehoe*

Petitioner argues that claims 1, 12, 13, 15, 23, and 24 would have been obvious over Janik and Kehoe. Pet. 3. We have considered the parties’

arguments and supporting evidence, and we determine that Petitioner has not shown by a preponderance of the evidence that claims 1, 12, 13, 15, 23, and 24 would have been obvious over Janik and Kehoe.

Petitioner argues that Janik and Kehoe qualify as prior art to the challenged claims under 35 U.S.C. § 102(e). Pet. 12, 15–16. Janik has a filing date of September 4, 2001, and a publication date of June 20, 2002. Ex. 1005. Petitioner argues in the Petition that Janik is entitled to the benefit of the filing date of U.S. Provisional Patent Application No. 60/230,084 (Ex. 1013, “the Janik provisional”), but includes only one sentence to show that the Janik provisional provides written description support for the claims of Janik. Pet. 15–16. Petitioner acknowledged at the oral hearing that it had not met its burden of production, and withdrew its argument that Janik is entitled to the benefit of the filing date of the Janik provisional. Tr. 11:16–12:7. Kehoe has a filing date of October 24, 2001, and an issue date of January 4, 2005. Ex. 1006. Petitioner does not argue that Kehoe is entitled the benefit of the filing date of any of the applications to which it claims priority. Tr. 11:6–15.

As discussed above, we determine that the challenged claims of the ’864 patent are entitled to the benefit of the filing date of the priority applications, i.e., July 17, 2001. *See supra* Section II.C. As a result, the earliest date of invention established by Patent Owner for the challenged claims (July 17, 2001) predates the earliest filing dates of Janik and Kehoe established by Petitioner (September 4, 2001, and October 24, 2001, respectively). Therefore, Petitioner has not shown sufficiently that either Janik or Kehoe qualifies as prior art to the challenged claims under 35 U.S.C. § 102(e).

For the reasons discussed above, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1, 12, 13, 15, 23, and 24 would have been obvious over Janik and Kehoe.

E. *Obviousness of Claims 1, 12, 13, 15, 23, and 24 over Lunsford and Canova*

Petitioner argues that claims 1, 12, 13, 15, 23, and 24 would have been obvious over Lunsford and Canova. Pet. 3. A claim is unpatentable as obvious under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) any objective indicia of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We have considered the parties' arguments and supporting evidence, and we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 12, 13, 15, 23, and 24 would have been obvious over Lunsford and Canova.

1. *Overview of Lunsford and Canova*

Lunsford relates to a cover for a handheld computer that adds a peripheral to the handheld computer. Ex. 1003, col. 1, l. 66–col. 2, l. 3. Specifically, the cover includes a connector that is capable of mating with a serial connector on the handheld computer. Ex. 1003, col. 2, ll. 25–29, col. 2, l. 64–col. 3, l. 1. The cover includes a radio antenna (i.e., a peripheral

device) that facilitates wireless communications with other devices. Ex. 1003, col. 2, ll. 3–9, col. 9, ll. 35–47. The cover also includes electronics that facilitate the transmission of data between the radio antenna and the handheld computer. Ex. 1003, col. 13, ll. 36–54, Fig. 4.

Canova relates to a cover for a handheld computer that adds a peripheral to the handheld computer. Ex. 1004, col. 1, ll. 47–55, col. 2, ll. 25–28. The cover includes a connector that is capable of mating with a connector on the handheld computer. Ex. 1004, col. 1, ll. 53–55, col. 2, ll. 1–4. The cover also includes one or more peripheral devices, such as an external speaker and/or a microphone. Ex. 1004, col. 2, ll. 33–38.

## 2. *Status of Lunsford and Canova as Prior Art*

Petitioner argues that Lunsford and Canova are prior art to the challenged claims under 35 U.S.C. § 102(e). Pet. 12. Patent Owner does not dispute that Lunsford and Canova are prior art to the challenged claims. PO Resp. 21–38. Lunsford has a filing date of May 16, 2000, and an issue date of March 12, 2002. Ex. 1003. Canova has a filing date of May 31, 2000, and an issue date of March 18, 2003. Ex. 1004. The earliest date of invention established by Patent Owner for the challenged claims of the '864 patent is July 17, 2001. *See supra* Section II.C. Therefore, because Lunsford and Canova are patents granted on applications by another that were filed before the earliest date of invention established by Patent Owner for the challenged claims, Petitioner has shown sufficiently that Lunsford and Canova qualify as prior art under 35 U.S.C. § 102(e).

## 3. *Claims 1 and 15*

Claim 1 recites “a cover body adapted to mate with a mobile device, and to serve as a cover of the mobile device, the mobile device having an

extension interface.” Ex. 1001, col. 7, ll. 16–18. Lunsford teaches a removable cover for a handheld computer that covers three exterior surfaces of the handheld computer. Pet. 27; Ex. 1003, col. 2, ll. 35–47, col. 6, ll. 55–59, Figs. 3A–3C. Lunsford also teaches that the handheld computer includes a serial connector (i.e., an extension interface). Pet. 27; Ex. 1003, col. 2, ll. 25–29, col. 2, l. 64–col. 3, l. 4, col. 9, ll. 59–65, col. 10, ll. 34–43, col. 13, ll. 36–63, Fig. 4. Patent Owner does not dispute that the combination of Lunsford and Canova teaches the above limitation of claim 1.

Claim 1 recites “an input/output (I/O) interface disposed on the cover body, and adapted to engage with the extension interface of the mobile device.” Ex. 1001, col. 7, ll. 19–21. Lunsford teaches that the cover includes a connector (i.e., an I/O interface) that is capable of mating with the serial connector on the handheld computer. Pet. 27; Ex. 1003, col. 2, ll. 25–29, col. 2, l. 64–col. 3, l. 4, col. 9, ll. 59–65, col. 10, ll. 34–43, col. 13, ll. 36–63. Lunsford teaches that the connector is disposed on the cover body. Pet. 25, 27; Ex. 1003, col. 2, l. 64–col. 3, l. 5 (“the encasement further comprises a connector that is *embedded in the back portion* of the encasement and is capable of mating with a serial connector of the handheld computer” (emphasis added)), col. 10, ll. 34–45 (“The back portion **304** of the encasement **300** may optionally include two connectors, one *located on the interior surface of the back portion 304*” (emphasis added)). In addition, Canova teaches a cover for a handheld computer with a connector disposed on the cover body that is capable of mating with a connector on the handheld computer. Pet. 26, 27; Ex. 1004, col. 1, ll. 53–55, col. 2, ll. 1–8, col. 2, ll. 41–47, Figs. 5A, 5B. Patent Owner does not dispute that the combination of Lunsford and Canova teaches the above limitation of claim 1.

Claim 1 recites “at least one peripheral device disposed on an exterior surface of the cover body.” Ex. 1001, col. 7, ll. 22–23. Lunsford teaches a radio antenna that is disposed on an exterior surface of the cover body. Pet. 28; Ex. 1003, col. 9, ll. 35–47, Fig. 3C. Patent Owner does not dispute that the combination of Lunsford and Canova teaches the above limitation of claim 1.

Claim 1 recites “an electronic component, disposed on an interior surface of the cover body, coupled to the peripheral device and the I/O interface, the electronic component being separate and distinct from the at least one peripheral device.” Ex. 1001, col. 7, ll. 24–27. Petitioner identifies a processor, universal asynchronous receiver/transmitter (“UART”), memory, and flexible cable in Lunsford as teaching the electronic component in claim 1. Pet. 28; Ex. 1003, Fig. 4. Lunsford teaches that the processor, UART, memory, and flexible cable are separate and distinct from the radio antenna, are located on an interior surface of the cover body, and are coupled to both the radio antenna and the connector on the cover body. Pet. 28–29; Ex. 1003, col. 9, ll. 58–65, col. 13, ll. 36–63, Figs. 3A–3C, 4.

Claim 1 recites that the electronic component is “configured to facilitate adding the at least one peripheral device to the mobile device mated with the cover body, through said I/O and extension interfaces, as peripheral device(s) of the mobile device.” Ex. 1001, col. 7, ll. 28–31. As discussed above, we construe this limitation to mean “configured to enable or contribute to enabling the peripheral device and the mobile device/core unit to function together.” *See supra* Section II.B.2. Lunsford teaches that data from the handheld computer is converted by the processor into the

Bluetooth protocol used by the radio antenna. Pet. 29; Ex. 1003, col. 13, ll. 40–48, Fig. 4. Lunsford also teaches that data from the radio antenna is converted by the UART into the serial format used by the connectors to transmit data from the cover to the handheld computer. Pet. 29; Ex. 1003, col. 13, ll. 51–53, Fig. 4. In other words, Lunsford teaches that the processor and UART facilitate the transmission of data between the radio antenna and the handheld computer, and, thus, enable the radio antenna and the handheld computer to function together.

Patent Owner argues that Lunsford does not teach the electronic component in claim 1 because the processor in Lunsford only facilitates “wireless transmission from the radio antenna to a remote receiving device,” and does not facilitate adding the radio antenna to the handheld computer. PO Resp. 28–29 (citing Ex. 2006 ¶ 61). Patent Owner’s argument is not persuasive. Petitioner does not rely solely on the processor in Lunsford as teaching the electronic component in claim 1. Pet. 28. Rather, Petitioner identifies the processor, UART, memory, and flexible cable in Lunsford as teaching the electronic component in claim 1. *Id.*; Tr. 44:18–45:22. As discussed above, Lunsford teaches that data from the handheld computer is converted by the processor into the Bluetooth protocol used by the radio antenna (Pet. 29; Ex. 1003, col. 13, ll. 40–48, Fig. 4), and that data from the radio antenna is converted by the UART into the serial format used by the connectors to transmit data from the cover to the handheld computer (Pet. 29; Ex. 1003, col. 13, ll. 51–53, Fig. 4). Thus, the processor and UART together facilitate the transmission of data between the radio antenna and the handheld computer.

Patent Owner argues that “the main microprocessor of the PDA [in Lunsford], running the device driver or firmware, would be the component responsible for adding Bluetooth enabled peripherals to the PDA—not the radio co-processor of the Bluetooth enabled peripheral.” PO Resp. 29 (citing Ex. 2006 ¶ 62). Patent Owner’s argument is not persuasive. Patent Owner does not direct us to any portion of Lunsford that mentions a device driver or firmware on the microprocessor of the handheld computer as being responsible for adding the radio antenna to the handheld computer.<sup>7</sup> PO Resp. 29; Ex. 2006 ¶ 62. Rather, as discussed above, Lunsford expressly teaches that the processor and UART on the cover enable the radio antenna and the handheld computer to function together. Pet. 29; Ex. 1003, col. 13, ll. 40–48, col. 13, ll. 51–53, Fig. 4.

Patent Owner argues that “Lunsford cannot disclose adding its radio antenna *through said I/O and extension interfaces*, as required by the claimed electronic component, because the Bluetooth communication described in Lunsford occurs between the radio antenna of the encasement and a remote device.” PO Resp. 29–30. According to Patent Owner, “[o]ne of ordinary skill in the art would understand that Lunsford’s protocols travel over the air and *not* ‘through said I/O and extension interfaces,’ as required by the claimed electronic component” (*id.* at 31 (citing Ex. 2006 ¶¶ 63–65)),

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<sup>7</sup> Even if a device driver on the handheld computer in Lunsford is involved in adding the radio antenna to the handheld computer, claim 1 does not require that the electronic component on the cover *alone* add the peripheral device to the mobile device. Ex. 1001, col. 7, ll. 28–31. In fact, the specification of the ’864 patent indicates that a device driver on the mobile device *together with* the electronic component on the cover may add the peripheral device to the mobile device. *Id.* at col. 5, ll. 41–42, col. 5, l. 66–col. 6, l. 4.

and that the interfaces between the cover and the handheld computer in Lunsford transmit “data in a *serial form* via a *serial communication* channel” (PO Resp. 32 (citing Ex. 2006 ¶¶ 65–68)). Patent Owner similarly argues that “the handheld Palm devices described in Lunsford and Canova—both patents being assigned to Palm, Inc. and depicting Palm III and V products—communicate basic serial bit streams through their I/O and extension interfaces, and *not* bit data that is converted into a protocol.” PO Resp. 35 (citing Ex. 2006 ¶ 69) (footnote omitted). Patent Owner’s argument is not persuasive.

Claim 1 recites “an electronic component . . . configured to facilitate adding the at least one peripheral device to the mobile device mated with the cover body, through said I/O and extension interfaces.” Ex. 1001, col. 7, ll. 24–31. Thus, claim 1 only recites that the electronic component facilitates adding the peripheral device to the mobile device through the I/O and extension interfaces. *Id.* The language of claim 1 does not require that the same protocol used by the peripheral device must travel through the I/O and extension interfaces to the mobile device. *Id.* Our reading of the claim language is supported by the specification of the ’864 patent, which explains that the mobile device does not use the same protocol as the peripheral device. *Id.* at col. 4, ll. 43–55. In fact, one purpose of the electronic component is to convert data from the mobile device into the protocol used by the peripheral device (and vice versa). *Id.* at col. 4, ll. 43–55 (“a protocol in conformance to a particular credit card reader”), col. 4, l. 65–col. 5, l. 1, col. 5, l. 66–col. 6, l. 4, Fig. 4.

Claim 15 recites limitations similar to those discussed above for claim 1, and further recites that the interchangeable cover is “removably attached

to the core unit.” Ex. 1001, col. 8, ll. 10–27. Lunsford teaches that the cover is removably attached to the handheld computer. Pet. 31; Ex. 1003, col. 6, ll. 55–59, Fig. 2B. Other than the arguments discussed above for claim 1, Patent Owner does not raise any additional arguments with respect to claim 15.

Therefore, Petitioner has shown sufficiently that the combination of Lunsford and Canova teaches the limitations of claims 1 and 15.<sup>8</sup>

#### 4. *Claims 12 and 23*

Claims 12 and 23 depend from claims 1 and 15, respectively, and recite that the electronic component comprises “a protocol processor.” Ex. 1001, col. 8, ll. 3–4, col. 8, ll. 62–64. As discussed above, we construe the term “protocol processor” to mean “a processor that processes incoming data packets, and packages outgoing data, according to a predefined protocol.” See *supra* Section II.B.3. Lunsford teaches that the processor on the cover “converts the bit data into protocols for Bluetooth communications.” Pet. 31; Ex. 1003, col. 13, ll. 44–48. Patent Owner acknowledges that processing data according to the Bluetooth protocol involves processing data packets. Tr. 57:12–20.

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<sup>8</sup> We would reach the same conclusion even if we agreed with the untimely arguments that Patent Owner made at the oral hearing about the meaning of the adding limitations of claims 1 and 15. As discussed above, Patent Owner argued at the oral hearing that the adding limitations refer to “the steps necessary to add the functionality . . . not the steps to keep it going,” and, thus, “adding tak[es] place before functioning.” Tr. 36:16–22, 46:1–47:6; see *supra* Section II.B.2. Figure 4 of Lunsford shows that *any* type of communication that takes place between the handheld computer and the radio antenna would pass through, and be enabled by, the processor and UART on the cover. Ex. 1003, Fig. 4; Tr. 44:18–45:22.

Patent Owner argues, though, that “Lunsford’s Bluetooth communications are transmitted to/from a remote device, **not** handheld computer 500,” and that “[t]he communications that occur between the encasement and the handheld computer, over the serial interface, are in *serial form*, **not** converted to the disclosed Bluetooth protocol.” PO Resp. 36–37 (citing Ex. 2006 ¶¶ 91–92). According to Patent Owner, “[d]ata transferred through [this] communication channel, as required by the challenge[d] claims, is neither packaged when outgoing, nor in a packetized form to be processed when incoming.” PO Resp. 37 (citing Ex. 2006 ¶ 93). Patent Owner’s argument is not persuasive.

As discussed above, claim 1 does not require that the same protocol used by the peripheral device must travel through the I/O and extension interfaces to the mobile device. Ex. 1001, col. 7, ll. 24–31. Similarly, our construction of the term “protocol processor” does not require that packetized data be transmitted from the cover to the mobile device. *See supra* Section II.B.3. Further, the specification of the ’864 patent explains that data transmitted from the mobile phone to the cover is then packaged by the protocol processor according to the protocol of the peripheral device for output to the peripheral device. Ex. 1001, col. 4, ll. 43–55 (“a protocol in conformance to a particular credit card reader”), col. 5, l. 66–col. 6, l. 4. Thus, contrary to Patent Owner’s argument, the ’864 patent specifies that the packetized data is transmitted between the protocol processor and the peripheral device, not between the protocol processor and the mobile device. Ex. 1025 ¶¶ 12–19. As discussed above, Lunsford teaches that data from the handheld computer is converted by the processor on the cover into Bluetooth

data packets for output to the radio antenna. Pet. 31; Ex. 1003, col. 13, ll. 44–48, Fig. 4; Tr. 57:12–20.

Therefore, Petitioner has shown sufficiently that the combination of Lunsford and Canova teaches the limitations of claims 12 and 23.

5. *Claims 13 and 24*

Claims 13 and 24 depend from claims 12 and 23, respectively, and recite that the electronic component comprises “a storage unit.” Ex. 1001, col. 8, ll. 5–6, col. 8, ll. 65–67. Lunsford teaches that the electronic component includes a non-volatile memory. Pet. 32; Ex. 1003, col. 13, ll. 48–50. Patent Owner does not dispute that the combination of Lunsford and Canova teaches the limitations of claims 13 and 24.

Therefore, Petitioner has shown sufficiently that the combination of Lunsford and Canova teaches the limitations of claims 13 and 24.

6. *Reasons for Combining Lunsford and Canova*

As discussed above, claim 1 recites “an input/output (I/O) interface disposed on the cover body, and adapted to engage with the extension interface of the mobile device.” Ex. 1001, col. 7, ll. 19–21. Lunsford teaches a cover with a connector (i.e., an I/O interface) that is capable of mating with a serial connector on a handheld computer. Pet. 27; Ex. 1003, col. 2, ll. 25–29, col. 2, l. 64–col. 3, l. 4, col. 9, ll. 59–65, col. 10, ll. 34–43, col. 13, ll. 36–63. Lunsford also teaches that the connector is disposed on the cover body. Pet. 25, 27; Ex. 1003, col. 2, l. 64–col. 3, l. 5 (“the encasement further comprises a connector that is *embedded in the back portion* of the encasement and is capable of mating with a serial connector of the handheld computer” (emphasis added)), col. 10, ll. 34–45 (“The back portion **304** of the encasement **300** may optionally include two connectors,

one located on the interior surface of the back portion **304**” (emphasis added)), Fig. 3E. Thus, as Patent Owner acknowledged at the oral hearing, Lunsford alone teaches the above limitation of claim 1.<sup>9</sup> Tr. 56:2–57:4. Petitioner, however, relies on Canova as more “plainly depict[ing] and describ[ing]” a connector disposed on a cover body. Pet. 24; Tr. 15:9–16.

Petitioner argues that a person of ordinary skill in the art would have had a reason to combine the cited teachings of Lunsford and Canova. Pet. 23–26 (citing Ex. 1007 ¶¶ 32–38). We agree with and adopt Petitioner’s reasoning. Specifically, Lunsford and Canova relate to the same field of endeavor as the ’864 patent, that is, a cover for a mobile device that adds a peripheral to the mobile device.<sup>10</sup> Ex. 1001, col. 1, ll. 27–30; Ex. 1003, col. 1, l. 66–col. 2, l. 3; Ex. 1004, col. 1, ll. 47–55, col. 2, ll. 25–28. Further, as discussed above, Lunsford teaches a connector disposed on the cover body, and Canova also teaches a connector disposed on the cover body. Ex. 1003, col. 2, l. 64–col. 3, l. 5, col. 10, ll. 34–45, Fig. 3E; Ex. 1004, col. 1, ll. 53–55, col. 2, ll. 1–8, col. 2, ll. 41–47, Figs. 5A, 5B. It would have been obvious to a person of ordinary skill in the art to combine these interrelated teachings of Lunsford and Canova so that the connector in Lunsford is disposed on the cover body as taught by Canova. Pet. 23–24; Ex. 1007 ¶¶ 35–37; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“Often, it will be necessary . . . to look to interrelated teachings of multiple patents”). Also, it would have been obvious to a person of ordinary skill in the art to

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<sup>9</sup> As a result, the challenged claims would have been obvious over Lunsford, even without Canova.

<sup>10</sup> In addition, Canova incorporates by reference the contents of Lunsford. Pet. 24; Ex. 1004, col. 1, ll. 6–8, col. 1, ll. 19–20.

dispose the connector in Lunsford on the cover body, as taught by Canova, in order to allow the connector in Lunsford to mate easily with the corresponding connector of a handheld computer. Pet. 25–26; Ex. 1007 ¶¶ 38; *KSR*, 550 U.S. at 417 (“the predictable use of prior art elements according to their established functions”).

Patent Owner argues that Lunsford teaches a cover for a handheld computer that provides unobstructed access to a connector on the handheld computer, whereas Canova teaches a cover for a handheld computer that obstructs access to a connector on the handheld computer. PO Resp. 21–23 (citing Ex. 2006 ¶¶ 55–57). Thus, according to Patent Owner, Canova is in “physical and functional conflict with the teachings of Lunsford.” PO Resp. 23 (citing Ex. 2006 ¶ 57). Patent Owner’s argument is not persuasive. As discussed above, and as Patent Owner acknowledged at the oral hearing, at least one embodiment in Lunsford teaches a connector on the back portion of the cover that is capable of mating with a serial connector on the handheld computer.<sup>11</sup> Ex. 1003, col. 2, l. 64–col. 3, l. 5, col. 10, ll. 34–45, Fig. 3E; Tr. 56:2–57:4. Because Lunsford teaches that the connector on the cover mates with the connector on the handheld computer, the cover in Lunsford obstructs access to the connector on the handheld computer, just like the cover in Canova. Ex. 1003, Fig. 3E; Ex. 1004, Figs. 5A, 5B. As a result, we

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<sup>11</sup> Lunsford explains that “[i]n this case, the encasement *may* further comprise a second, pass-through connector accessible from a back surface of the back portion of the encasement to mate with another connector of an accessory device.” Ex. 1003, col. 3, ll. 2–5 (emphasis added). In other words, because the connector on the cover in this embodiment of Lunsford obstructs access to the connector on the handheld computer, the cover optionally *may* include a second connector that enables the handheld computer to mate with an accessory device. *Id.*

are not persuaded that the teachings of Lunsford and Canova are in physical or functional conflict.

Patent Owner argues that “[a]t the time of the ’864 Patent, it was the PDA manufacturers that would drive the connector location on its mainstream products . . . not the accessory designer.” PO Resp. 24 (citing Ex. 2006 ¶ 58). Thus, according to Patent Owner, “one of ordinary skill in the art would not have considered relocating the connector (or adding an additional connector) on the handheld device itself, when designing a cover or other accessory—as [Petitioner] proposes here.” PO Resp. 24 (citing Ex. 2006 ¶¶ 56–59). Patent Owner’s argument is not persuasive. Petitioner does not propose relocating the connector on the handheld computer. Pet. 23–26. To the contrary, Petitioner argues that it would have been obvious to dispose the connector on the cover body so that it can mate easily with the connector on the handheld computer. *Id.* at 25–26 (“the combination teaches placing the cover’s I/O connector on the cover’s surface where it can engage with the corresponding I/O connector of the PDA”); Pet. Reply 6. Petitioner’s declarant, Mr. Eric Welch, similarly explains that it would have been obvious to position the connector on the cover body “where needed to mate with the corresponding connector of the PDA.” Ex. 1007 ¶ 38.

Patent Owner argues that the connector on spine of the cover in Canova “could not ‘last a long period of time’ when the cover was inserted and removed a mere ‘number of times’” from the handheld computer. PO Resp. 24–25 (citing Ex. 2002, 62:5–63:11). As a result, according to Patent Owner, a person of ordinary skill in the art would not have attempted to use the connector in Canova in a consumer product. PO Resp. 24–26 (citing Ex. 2006 ¶¶ 56–59). The premise of Patent Owner’s argument is that

Petitioner's proposed combination requires relocating the connector in Lunsford to the spine of the cover as taught by Canova. PO Resp. 24–26; Ex. 2006 ¶¶ 56–59. We disagree with that premise. Although we noted in the Decision on Institution that the connector in Lunsford could be disposed on the spine of the cover to accommodate a handheld computer with a connector in the side rail as taught by Canova (Dec. on Inst. 7–8), Petitioner's proposed combination is not so limited (Pet. 23–26). Petitioner argues more generally that it would have been obvious based on the teachings of Lunsford and Canova to dispose a connector on the cover body where needed to mate with the corresponding connector of the handheld computer. *Id.* at 25–26 (“the combination teaches placing the cover's I/O connector on the cover's surface where it can engage with the corresponding I/O connector of the PDA”); Pet. Reply 6; Ex. 1007 ¶ 38. As a result, in Petitioner's proposed combination, the location of the connector on the cover body (e.g., on the back of the cover body or on the spine of the cover body) may differ for different handheld computers. Ex. 1003, col. 10, ll. 34–45, Fig. 3E; Ex. 1004, col. 5, l. 65–col. 6, l. 4, Figs. 3, 6.

Moreover, even if Petitioner's proposed combination does require disposing the connector in Lunsford on the spine of a cover as taught by Canova, Patent Owner's argument still is not persuasive. A reasonable expectation of success does not require that a person of ordinary skill in the art already know with absolute predictability that a combination would work. *In re Kubin*, 561 F.3d 1351, 1360 (Fed. Cir. 2009). Here, Canova expressly teaches that a cover with a connector disposed on its spine works for its intended purpose of mating with a corresponding connector on a side rail of a handheld computer. *See, e.g.*, Ex. 1004, col. 5, l. 65–col. 6, l. 4, Fig.

6. As a result, a person of ordinary skill in the art reading Canova would have had a reasonable expectation that the connector in Canova would work for its intended purpose, *see In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (finding that the teachings of the prior art provide a sufficient basis for a reasonable expectation of success), even if, as Patent Owner contends, subsequent testing of the connector might reveal that it is not suitable for a consumer market.

7. *Summary*

For the reasons discussed above, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 12, 13, 15, 23, and 24 would have been obvious over Lunsford and Canova.

III. CONCLUSION

Petitioner has shown by a preponderance of the evidence that claims 1, 12, 13, 15, 23, and 24 of the '864 patent are unpatentable.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1, 12, 13, 15, 23, and 24 of the '864 patent are shown unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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