

## 《國際四大 IC 設計公司財報關鍵查核事項》

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依照 2020 年營收排行，國際四大 IC 設計公司依次為高通(Qualcomm)、博通(Broadcom)、輝達(Nvidia)及聯發科(MediaTek)，先看一下它們的查帳會計師及最近一次年度財報日期。

### #查帳會計師及最近年報日期

高通：PwC，2020/9/27

博通：PwC，2020/11/1

輝達：PwC，2021/1/31

聯發科：EY，2020/12/31

國際 IC 設計四巨頭中，只有聯發科是由 EY (台灣稱為安永)查核，其餘三家都是由 PwC (台灣稱為資誠)查核。從最近年報日期也可發現，只有聯發科是採用曆年制(會計年度從 1/1 開始，這是台灣的統一規定)，其餘三家公司的會計年度開始月份分別是 10 月、11 月及 2 月，且每年的財報日期都不固定(例如高通過去三年分別是 2020/9/27、2019/9/29、2018/9/30)，在進行跨公司比較時，會造成一些困擾。

參考：台灣 IC 設計前十大公司(依 2020 年營收排名)的查帳會計師

聯發科：EY

聯詠：EY

瑞昱：PwC

群聯：Deloitte

擎亞：PwC

新唐：Deloitte

譜瑞-KY：PwC

晶豪科：PwC

義隆：KPMG

矽力-KY：Deloitte

台灣前十大 IC 設計公司聘請的會計師，EY 有 2 家，PwC 有 4 家，Deloitte 有 3 家，KPMG 有 1 家，PwC 的佔比也是最高。

接下來，我們分別看一看國際四大 IC 設計公司的財報關鍵查核事項(Critical Audit Matter)。

### #高通的財報關鍵查核事項

在高通的最新一期年度財報中，PwC 提出兩項關鍵查核事項，其一是司法及監管程序(legal and regulatory proceedings)，其二是華為合約的收入認列(Revenue Recognition-Huawei Agreements)。

在第一個項目中，PwC 提到高通目前牽涉到幾件司法及監管控訴案件，因為這些案件的最終結果有可能對財報有重大影響，所以高通的管理當局必須對可能的影響作評估並做必要的揭露。若司法或監管控訴導致的或有損失有重大可能(probable)會發生且金額能合理估計(be reasonably estimated)，那高通就必須在

財報上做必要的認列或附註揭露。PwC 在說明中提到查核人員大量審閱來自高通內部、控方、法院及外部法律專家提供的文件及專業意見，俾便能對高通的揭露適當性做合理的評估。

在第二個項目中，PwC 提到高通與大客戶華為之間對於自 2020/1/1 開始的新合約有爭議，雖然爭議在 2020 年 7 月解決了，但美國政府後來因國安考量對華為實施制裁，所以高通在認列來自華為的收入上充滿變數，例如在 2020/9/27 的財報上就有對華為的 13 億美元應收帳款(佔高通應收帳款的一半)，PwC 對這些款項的收現可能性做了必要的查核及審計判斷。

#### #博通的財報關鍵查核事項

在博通的最新一期年度財報中，PwC 把博通因為收購賽門鐵克(Symantec)公司的企業安全部門，而在財報上認列的無形資產(intangible assets)項目，當成關鍵查核事項。

附帶一提，博通過去幾年經常性地進行大規模的併購，因而在資產負債表上形成了巨額的合併商譽(註：合併商譽是指買方的收購價格，超越被併購方可辨認淨資產價值的部分。國內 IC 設計龍頭聯發科，在 2012 年對晨星半導體的收購，也在合併報表上形成了巨額的合併商譽)。以 2020/11/1 的財報為例，博通的總資產為 759.33 億美元，其中商譽為 434.47 億美元，占比高達 57.22%，這在全球任何一家公司的財報中，都是很罕見的。

博通在 2019/11/4 以 107 億美元的代價併購 Symantec，並取得 Symantec 的商標權(註：Symantec 剩下的部分改名為 NortonLifeLock 公司)。在這 107 億美元中，66 億美元列為合併商譽，54 億美元列為無形資產，其他則是零星的資產負債項目。PwC 是把博通對 54 億美元無形資產的處理當作關鍵查核事項。

博通因併購 Symantec 而認列的 54 億美元無形資產，是由 29 億美元的已開發技術(Developed technology)及 24 億美元的客戶合約及相關關係(Customer contracts and related relationships)和其他零星小項目構成，這兩大項目都是分五年攤銷為費用。PwC 認為這兩大項目的評價牽涉到高度專業及主觀上的判斷，所以查核起來很費事，而金額龐大且影響重大，所以列為關鍵查核事項。

#### #輝達的財報關鍵查核事項

在輝達的最新一期年度財報中，PwC 提出兩項關鍵查核事項，其一是因併購 Mellanox 科技公司而認列的無形資產，其二是存貨減損的評價。

輝達並不常進行併購活動，但每次出手都很關鍵。它在 2019/3/11 以 69 億美元代價收購提供 InfiniBand 網路互連產品的 Mellanox，把出價 60 億美元的 Intel 氣走。輝達後來在 2020 年 9 月宣布斥資 400 億美元天價收購 ARM，但由於包含高通、Google、微軟在內的多家大企業反對，目前收購案成立的可能性並不高。

對 Mellanox 的收購案，輝達最後是在 2021/1/31 結束的會計年度內以 71.3 億美元完成。在這 71.3 億美元中，34.3 億美元列為合併商譽，29.7 億美元列為無形資產，其餘是零星的資產負債項目。

29.7 億美元的無形資產中，16.4 億美元是分四年攤銷的已開發技術(Developed Technology)，6.3 億美元是研發中的無形資產(In-process R&D intangible assets)，PwC 是把這合計 22.7 億美元的兩個項目當成關

鍵查核事項之一。從字面上看即可知這兩個項目牽涉到高度專業及主觀上的判斷，特別是 IPR&D 這個項目的評價，對會計師的查核是很大的挑戰。

在存貨減損的評價部分，PwC 提到輝達的主要問題在於超額存貨(excess inventories)，這取決於管理當局對未來市場需求的評估是否正確，一旦需求不如預期，存貨價值減損就會造成銷貨成本上升、銷貨毛利下降。PwC 小心翼翼地判斷輝達是否認列適當的存貨備抵跌價損失，並正確反映在報表上。

#### #聯發科的財報關鍵查核事項

在聯發科的最新一期年度財報中，EY 把聯發科的收入認列當成關鍵查核事項。聯發科的主要收入來源係銷售晶片，EY 認為該公司銷售產品之組合及訂價方式多元，訂單內容及實務慣例隱含之項目通常亦包含數量折扣，因此需判斷並決定履約義務及其滿足之時點，以及履約義務之變動對價之估計。EY 在查核報告中詳細列舉其對聯發科收入認列之查核程序，感覺很像把審計學教科書關於收入認列的查核程序完整列舉一遍。

我在前一篇文章中提到，聯發科在過去三年都是在財報申報的截止日或前一兩天才申報。我今天查了一下 EY 在查核報告上的簽字日期，2020 年報是 2021/3/19 (聯發科在 2021/3/30 申報)，2019 年報是 2020/3/20 (聯發科在 2020/3/31 申報)，2018 年報是 2019/3/22 (聯發科在 2019/3/29 申報)。簽字和申報間隔時間分別為 11 日、11 日及 7 日。

比較：台積電 2020 年報的會計師簽字日期是 2021/2/9 (台積在 2021/2/26 申報)，2019 年報是 2020/2/11 (台積在 2020/2/27 申報)，2018 年報是 2019/2/19 (台積在 2019/2/22 申報)。間隔時間分別為 17 日、16 日及 3 日。

證交法第 36 條規定，年度財報在會計師查核完畢後，必須經過董事會通過及監察人承認，才能申報。大家可能會覺得前述間隔時間大約是因為安排董事會或監察人會議(設立獨立董事的公司可由獨立董事組成的審計委員會取代監察人)日程延宕所致。

其實在台灣採用國際會計準則(IFRS)以後，會計師在查核報告上的簽字日期已改為須在董監會議通過之後，實務上通常會是同一天。所以申報日期延宕太久是沒有什麼道理的。

附圖表：(以下資料取材自各公司會計師查核報告)

#### 收入認列

聯發科技股份有限公司及其子公司民國一〇九年度認列營業收入淨額322,145,988仟元，金額係含商品銷售收入317,493,721仟元及勞務及其他營業收入4,652,267仟元。其中主要收入來源係銷售晶片，由於銷售產品之組合及訂價方式多元，訂單內容及實務慣例隱含之項目通常亦包括數量折扣，因此，需判斷並決定履約義務及其滿足之時點，以及履約義務之變動對價之估計，因此本會計師辨認客戶合約收入之認列為關鍵查核事項。

本會計師之查核程序包括(但不限於)評估收入認列會計政策的適當性；評估及測試銷貨循環中與收入認列時點攸關之內部控制有效性；針對營業收入明細選取樣本，執行交易細項測試，複核其合約中之重大條款並測試收入認列之五步驟及核對至相關交易憑證；執行合約修改測試、合約合併測試、主理人/代理人測試；針對應收帳款採用審計抽樣函證期末餘額及重要銷售條款；對於資產負債表日前後一段時間之交易，分析其變動情況是否合理，並抽選樣本，執行截止點測試；此外，本會計師亦複核期後銷貨收入是否有重大迴轉之情況。

本會計師亦考量營業收入揭露之適當性，請參閱合併財務報表附註四、附註五及附註六。



### Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

#### Legal and Regulatory Proceedings

As described in Notes 1 and 7 to the consolidated financial statements, the Company is currently involved in certain legal and regulatory proceedings. If there is at least a reasonable possibility that a material loss may have been incurred associated with a pending legal and regulatory proceeding, management discloses such fact, and if reasonably estimable, management provides an estimate of the possible loss or range of possible loss. Management records the best estimate of a loss related to pending legal and regulatory proceedings when the loss is considered probable and the amount can be reasonably estimated. Where a range of a loss can be reasonably estimated with no best estimate in the range, management records the minimum estimated liability. As additional information becomes available, management assesses the potential liability related to pending legal or regulatory proceedings and revises the estimates and updates the disclosures accordingly. Significant judgment is required by management in both the determination of probability of loss and the determination as to whether a loss is reasonably estimable.

The principal considerations for our determination that performing procedures relating to legal and regulatory proceedings is a critical audit matter are the significant judgment by management when assessing the likelihood of a loss being incurred and when determining whether a reasonable estimate of the loss or range of loss can be made; this led to a high degree of auditor judgment, subjectivity and significant audit effort in evaluating management's assessment of the loss contingencies associated with the legal and regulatory proceedings.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's evaluation of legal and regulatory proceedings, including controls over determining whether a loss is probable and whether the amount of loss can be reasonably estimated, as well as financial statement disclosures. These procedures also included, among others: (i) obtaining and evaluating the letters of audit inquiry with external and internal legal counsel; (ii) reading certain correspondence the Company received from regulators; (iii) reading certain documents the Company has filed with the courts and related counterparty filings; (iv) reading certain documents issued by the courts; (v) evaluating the reasonableness of management's process for identifying and assessing loss contingencies regarding whether an unfavorable outcome is probable and reasonably estimable; and (vi) evaluating the sufficiency of the Company's legal and regulatory proceedings disclosures in the consolidated financial statements.

#### Revenue Recognition - Huawei Agreements

As described in Note 2 to the consolidated financial statements, in July 2020, the Company entered into a settlement agreement with Huawei to resolve their prior dispute related to their license agreement that expired on December 31, 2019 and also entered into a new long term, global patent license agreement that applies to sales of certain wireless products by Huawei beginning on January 1, 2020 (collectively "Huawei Agreements"). Amounts due under the settlement agreement are to be paid in installments by the end of June 2021 in accordance with an agreed upon payment schedule. Significant evaluation and judgment were required by management in determining the appropriate accounting for the Huawei Agreements. Management considered, among other items, (i) Huawei's commitment to perform under the Huawei Agreements (including Huawei's intent and ability to pay amounts due); (ii) Huawei's performance to date under the Huawei Agreements (including timely payments made); (iii) Huawei's current and projected financial condition (including the impact of enacted national security protection policies by the U.S. government on Huawei's business); and (iv) certain contractual protections obtained under the Huawei Agreements. Based on this evaluation, management concluded the revenue recognition criteria were met, and recorded revenues of \$1.8 billion in the fourth quarter of fiscal 2020 related to the full amount due from Huawei under the settlement agreement and amounts for the March 2020 and June 2020 quarters under the new global patent license agreement. In addition, revenues recorded for the fourth quarter of fiscal 2020 included estimated royalties due from Huawei for sales made in the September 2020 quarter under the new global patent license agreement.

The principal considerations for our determination that performing procedures relating to revenue recognition for the Huawei Agreements is a critical audit matter are the significant judgment by management in determining the appropriate accounting for the Huawei Agreements, including evaluating the significant judgments related to determining Huawei's commitment to perform its contractual obligations and probability of collection under the Huawei Agreements; this led to a high degree of auditor judgment, subjectivity and significant audit effort in performing procedures to evaluate the appropriateness of revenue recognized for the Huawei Agreements.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including the assessment and evaluation of the Huawei Agreements. These procedures also included, among others, evaluating the revenue recognized for the Huawei Agreements and the reasonableness of significant judgments related to determining Huawei's commitment to perform its contractual obligations and probability of collection

under the Huawei Agreements. Evaluating the reasonableness of management's judgments included (i) reading the Huawei Agreements; (ii) performing inquiries with key members of management who were involved in the negotiation and execution of the Huawei Agreements; (iii) evaluating Huawei's compliance with initial payment and reporting obligations under the Huawei Agreements; (iv) evaluating management's assessment of collectability, including the analysis of the impact of enacted national security protection policies by the U.S. government on Huawei's business; and (v) confirming the outstanding receivable balance from the settlement agreement as of September 27, 2020 with Huawei.

/s/ PricewaterhouseCoopers LLP

San Diego, California  
November 4, 2020

We have served as the Company's auditor since 1985.

### Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

#### *Valuation of Developed Technology and Customer Contracts and Related Relationships Intangible Assets Acquired - Symantec Corporation Enterprise Security Business*

As described in Notes 2 and 4 to the consolidated financial statements, the Company completed the purchase of certain assets and assumption of certain liabilities of the Symantec Corporation Enterprise Security business on November 4, 2019 for \$10.7 billion in cash, of which \$2.9 billion of finite-lived developed technology and \$2.4 billion of finite-lived customer contracts and related relationships intangible assets were recorded.

Management valued the developed technology using the multi-period excess earnings method under the income approach. This method reflects the present value of the projected cash flows that are expected to be generated by the developed technology less charges representing the contribution of other assets to those cash flows. Management valued the customer contracts and related relationships using the with-and-without-method under the income approach. In this method, the fair value was measured by the difference between the present values of the cash flows with and without the existing customers in place over the period of time necessary to reacquire the customers. Significant estimates and assumptions in estimating the fair value of the developed technology and the customer contracts and related relationships include future expected cash flows from product sales, customer contracts and acquired technologies, revenue growth rate, customer ramp-up period, technology obsolescence rates, and discount rates.

The principal considerations for our determination that performing procedures relating to the valuation of the developed technology and the customer contracts and related relationships intangible assets acquired in the Symantec Corporation Enterprise Security business acquisition is a critical audit matter are (i) a high degree of auditor judgment and subjectivity in performing procedures relating to the fair value measurement of the developed technology and the customer contracts and related relationships due to the significant judgment by management when developing these estimates, (ii) the significant audit effort in evaluating the significant assumptions relating to the valuation of the developed technology and the customer contracts and related relationships related to the revenue growth rate, the customer ramp-up period, the technology obsolescence rates, and the discount rates, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the acquisition accounting, including controls over management's valuation of the developed technology and the customer contracts and related relationships and controls over development of the assumptions related to the revenue growth rate, the customer ramp-up period, the technology obsolescence rates, and the discount rates. These procedures also included, among others, reading the purchase agreement and testing management's process for determining the fair value of these intangible assets, including evaluating the appropriateness of the valuation methods, testing the completeness and accuracy of data used in the methods, and evaluating the reasonableness of the significant assumptions related to the revenue growth rate, the customer ramp-up period, the technology obsolescence rates, and the discount rates. Evaluating the reasonableness of the revenue growth rate and the customer ramp-up period involved considering the past performance of the acquired business and industry data. Evaluating the reasonableness of the technology obsolescence rates involved considering the past performance of the acquired business and benchmarking of peer companies. Professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of valuation methods and the reasonableness of the customer ramp-up period, the technology obsolescence rates, and the discount rates.

/s/ PricewaterhouseCoopers LLP

San Jose, California  
December 18, 2020

We have served as the Company's auditor since 2006.

#### Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

#### *Acquisition of Mellanox Technologies Ltd.- Valuation of Developed Technology and In-process Research and Development Intangible Assets Acquired*

As described in Note 2 to the consolidated financial statements, in fiscal year 2021 the Company completed the acquisition of Mellanox Technologies Ltd. for consideration of approximately \$7.13 billion, of which \$1,640 million of developed technology and \$630 million of in-process research and development intangible assets were recorded. The fair values of developed technology and in-process research and development intangible assets were determined using the multi-period excess earnings method. As disclosed by management, management applied significant judgment in estimating the fair value of the intangible assets acquired, which involved the use of certain estimates and assumptions, including future economic and market conditions, revenue growth, the technology migration curve, and risk-adjusted discount rates.

The principal considerations for our determination that performing procedures relating to the valuation of the developed technology and in-process research and development intangible assets acquired in the acquisition of Mellanox Technologies Ltd. is a critical audit matter are (i) the high degree of auditor judgment and subjectivity in applying procedures relating to the fair value measurement of developed technology and in-process research and development intangible assets acquired due to the significant judgment by management when developing the estimate, (ii) significant audit effort in evaluating management's assumptions relating to the estimate, such as revenue growth and the technology migration curve, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the acquisition accounting, including controls over management's valuation of the intangible assets and controls over development of the assumptions related to the revenue growth and the technology migration curve. These procedures also included, among others, reading the purchase agreement and testing management's process for estimating the fair value of the developed technology and in-process research and development intangible assets acquired. Testing management's process included evaluating the appropriateness of the valuation method and the reasonableness of management's assumptions related to the revenue growth and the technology migration curve for the intangible assets acquired, and using professionals with specialized skill and knowledge to assist with the evaluation. Evaluating the reasonableness of the revenue growth involved considering the past performance of the acquired business as well as economic and industry forecasts. The technology migration curve was evaluated by considering the revenue attribution between existing technology and in-process research and development based on the assessment of the separation of forecasted future revenue between developed products and new generation products and the technology carryover rate.

#### *Valuation of Inventories - Provisions for Excess or Obsolete Inventories*

As described in Note 1 to the consolidated financial statements, the Company charges cost of sales for inventory provisions to write-down inventory to the lower of cost or net realizable value or for obsolete or excess inventory. Most of the Company's inventory provisions relate to excess quantities of products, based on the Company's inventory levels and future product purchase commitments compared to assumptions about future demand and market conditions. As

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disclosed by management, the inventory provisions developed include assumptions about future demand and market conditions. As of January 31, 2021, the Company's consolidated inventories balance was \$1,826 million.

The principal considerations for our determination that performing procedures relating to the valuation of inventories, specifically the provisions for excess or obsolete inventories, is a critical audit matter are the significant judgments by management when developing provisions for excess or obsolete inventories, including developing assumptions related to future demand and market conditions. This in turn led to significant auditor judgment, subjectivity, and effort in performing procedures and evaluating management's assumptions related to future demand and market conditions.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's provisions for excess or obsolete inventories, including controls over management's assumptions related to future demand and market conditions. These procedures also included, among others, testing management's process for developing the provisions for excess or obsolete inventories; evaluating the appropriateness of management's approach; testing the completeness, accuracy, and relevance of underlying data used in the approach; and evaluating the reasonableness of management's assumptions related to future demand and market conditions. Evaluating management's assumptions related to future demand and market conditions involved evaluating whether the assumptions used by management were reasonable considering (i) current and past results, including historical product life cycle, (ii) the consistency with external market and industry data, (iii) changes in technology, and (iv) comparing prior period estimates to actual results of the same period.

/s/ PricewaterhouseCoopers LLP

San Jose, California

February 26, 2021

We have served as the Company's auditor since 2004.